THE PHONETICS AND PHONOLOGY OF

ISTANBUL TURKISH

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by

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ABSTRACT

A phonetic and phonological analysis of Istanbul Turkish is presented in this thesis in two parts, part I – Phonetics, covering chapters 1–3, and part II – Phonology, covering chapters 4–8.

A phonetic description and classification of vowels in monosyllabic words is given in Chapter 1, and in Chapter 2 consonants are described and classified in articulatory phonetic terms.

In Chapter 3 the distinction between assimilated and unassimilated loanwords is established, and various phonetic features of unassimilated loanwords are examined.

Root structures of nouns, adjectives and verbs are analysed in Chapter 4, and prosodies are set up for the root as well as subsystems for C and V systems. Phonological structures of unassimilated nouns and adjectives are also given.

In Chapter 5 affixes are analysed in two main groups: native Turkish affixes and non-native affixes, and structures are given for them.

In Chapter 6 junction prosodies are set up to show the prosodic links between roots and suffixes, and suffixes and suffixes.

Onomatopoeia and reduplication are discussed in Chapter 7. Structures of onomatopoeic words are analysed, and various types of reduplication discussed.

Chapter 8 is concerned with some aspects of discourse harmony. Prosodies are set up for inter-word and intra-word

junctions, based on observations of phonic data in a quick style of speech.

Some experimental findings obtained by the aid of palatography, spectrography and mingography which provide instrumental evidence for the perceptual observations of the articulatory features of vowels and consonants are presented in Appendix I.

A list of monosyllabic words in which vowels of different groups are illustrated is given in Appendix II.

Appendix III provides a list of the most widely and frequently used onomatopoeic words.

A bibliography is given at the end of the thesis.

Acknowledgements

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To my husband and my parents I am grateful for the understanding they have shown during the time spent on this work.

System of Reference

References to books and articles relevant to the topics under discussion are made by placing a number at the appropriate place in the context referring to a correspondingly numbered footnote at the bottom of the page which gives the author's name, the title of the work in question, the date of publication and where possible, the page numbers.

Cross references are mostly given by indicating the number of chapter and section, and where necessary, subsection, paragraph or subparagraph, eg. 4.2.2.3.1. is read as follows:

4 refers to Chapter 4
2 " " section 2 of Chapter 4
2 " " subsection 2 of section 2
3 " " paragraph 3 of subsection 2
1 " " subparagraph 1 of paragraph 3

Abbreviations

BSOAS	Bulletin of the School of Oriental and African Studies
IPA	International Phonetic Alphabet
mingo.	Mingogram
palat.	Palatogram
pl.	Plural
PUDPS	Proceedings of the University of Durham Philosophical Society
sg.	Singular
spec.	Spectrogram
TPS	Transactions of the Philological Society

Symbols and Notational Conventions

[ ] Enclose phonetic symbols

' ' Enclose glosses

( ) i. Enclose optionally chosen items

ii. in glosses and in the descriptions enclose additional information for clarity

\+ indicates intra-word and inter-word junctions

⟶ results in

The symbols and diacritics used in the transcription of the examples are those of the IPA Chart, but in the case of some of the IPA symbols a deviation from their use in the chart was found to be necessary for typographical convenience. Such changes are as follows:

[v] for IPA [ʋ]

[ɾ] for IPA [ɾ]

[ɑ] for IPA [ɑ]

The vowel symbols are not used with their cardinal values in that variations in degrees of openness/closeness and frontness/backness that are not great enough to justify using a different symbol are indicated by the usual IPA diacritics, viz. ˓ , ˙ , + , − , so that [ụ] = closest variety of back rounded vowel, [u] = less close variety of back rounded vowel.

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List of Palatograms

List of Spectrograms

List of Mingograms

INTRODUCTION

The present phonetic and phonological analysis of Istanbul Turkish is based on the speech of the writer which represents the main characteristics of colloquial Istanbul Turkish as spoken by the generations born during and after the late Thirties most of whom had the opportunity of some further education other than primary and secondary schooling. The emphasis on this being the speech of those particular generations is important; the Turks had been using the Arabic script, which was unsuited to Turkish, since their conversion to Islam around the 10th century, and throughout the centuries Turkish had been borrowing a vast number of words and phrases from Persian and Arabic. Thus the written language had become highly artifical which also affected the spoken language. After the rise of the new Turkish republic the Latin alphabet was adopted in November 1928 and a few months later the old Arabic script was banned. This was a first step in breaking away from the influence of Arabic and Persian, and the Turkish Linguistic Society, founded in 1932, started to replace loanwords by Turkish words taken from dialects, or from other Turkic languages, and where this was not possible new words were invented or even taken from Western languages. However a number of very commonly used Arabic and Persian words were left to assimilize[1].

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[1] For a summary of the reforms in script and language see B.Lewis, 'The Emergence of Modern Turkey', 1961.

Thus the new generations were much less exposed to Arabic and Persian influence, and also the greater educational opportunities meant that they had a wide range of vocabulary and were encouraged to use, where possible, native Turkish words rather than loanwords.

The data was collected by the writer over a period of three years, and consists of recordings and observations made of the writer's own speech and that of the other speakers of Istanbul Turkish of the generations indicated above. The findings were then checked with the speech of the other speakers. In the part of this thesis dealing with phonetics, vowels and consonants are described in terms of articulatory phonetics using the symbols of the I.P.A. The phonological analysis is an application of the prosodic approach which considers phonological structures in terms of phonematic units and prosodies[1]. Phonematic units are phonological elements which may be referred to places in the structure, these are divided into consonantal elements and vocalic elements which are referred to as C and V systems. Prosodies, on the other hand, extend over sequences of phonematic units of any length, that is they have relevance to more than one place in the structure.

Apart from this thesis no detailed phonetic description of spoken Istanbul Turkish has been made as far as the writer could ascertain; the only descriptions available are found as introductions to grammatical works on Turkish, and are mainly

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[1] An account of prosodic analysis is not given here, for which see J.R.Firth, 'Sounds and Prosodies', TPS, 1948, and R.H. Robins, 'Aspects of Prosodic Analysis', PUDPS, 1957.

intended to give the pronounciation of the orthographic forms and to illustrate vowel harmony as well as the use of different forms of suffixes with different words, as in T.Banguoğlu's 'Türk Grameri', 1959, and G.L.Lewis' 'Turkish Grammar', 1961. Some work has been done on other Turkish dialects, mainly in phonemic terms,e.g. Z. Korkmaz, 'Güney – batı Anadolu Ağızlari: Ses Bilgisi', 1956, and also by the same author, 'Nevşehir ve Yöresi Ağızları', 1963. There is also L.B.Swift's 'A Reference Grammar of Modern Turkish', 1961, which gives a description of Turkish in phonemic terms and R.B.Lees', 'The Phonology of Modern Standard Turkish', 1961, which is an application of transformational – generative approach to phonological description. Apart from N.Waterson's article on 'Some aspects of the phonology of the nominal forms of the Turkish word', BSOAS, 1956, prosodic analysis has not been applied to Turkish before. Using this method of analysis, the present thesis examines the structure of roots and affixes, and establishes inter-word and intra-word junction prosodies to account for the various types of juncture found in the language.

An analysis of onomatopoeic words is also given, a topic on which, to the writer's knowledge,there has been no previous work. It also attempts, for the first time, to reveal some aspects of discourse harmony,a topic which in itself could constitute a separate study.

The study of intonation was excluded from the thesis for two reasons: because it is a topic which is large enough to be the subject of a separate thesis,and because it is already being

subjected to detailed investigation by Miss M.Bainbridge, lecturer in Turkish, at the School of Oriental and African Studies, University of London.

An attempt has thus been made to fill the gap in knowledge of the spoken form of the Istanbul dialect of Turkish by giving as full an account as possible of the phonetics and phonology within the limits referred to above.

PART I – PHONETICS

CHAPTER ONE

Description and Classification of Vowels

1.1. Introduction

A phonetic description and classification of the vowels in monosyllabic words[1] in Istanbul Turkish as spoken in isolation is given in this chapter.

Monosyllabic words in Istanbul Turkish may be described as being of the following types: v, $\bar{v}$, cv, $c\bar{v}$, vc, vcc, cvc and cvcc[2]. This makes it possible to describe vowels as occuring pre-consonantally , interconsonantally, and postconsonantally, i.e. in initial, medial and final positions.

The various vowels are classified into eight groups in accordance with tongue height[3]. Consonants affect vowels of these groups depending on whether they are in initial and/or final positions, i.e. whether they precede or follow the vowel. Vowels of each group are, therefore, further sub-divided according to differences in quality related to the consonants preceding and/or following the vowels in question. Where vowels of some groups do

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[1] Monosyllabic words are taken as the framework for the description of vowels because these show the effects of the preceding and following consonants on the vowels most clearly.

[2] c and v represent consonants and vowels at the phonetic level, and are used in phonetic description. For phonological structures see Chap. 4.

[3] For the list of words in which the vowels of each group occur see Appendix II. The list gives the orthographic form, the phonetic transcription and the English translation of the words. Within each vowel group, words are grouped together according to vowel quality and in these subgroups they are listed in alphabetical order for easy reference.

not occur in initial or in final positions, such exceptions are noted when dealing with each separate group.

1.1.2. The State of the Glottis

During the production of the vowels the glottis is in vibration, that is the vowels are produced with voice.

1.1.3. The Position of the Soft Palate

The soft palate is raised during the articulation of the vowels when they are not preceded and/or followed by a nasal consonant. If a nasal precedes and/or follows a vowel, there is usually some lowering of the soft palate during the articulation of the vowel in question. Nasality is stronger where the vowel is followed by a nasal+stop, nasal+sibilant or nasal+[j], or where the vowel occurs between two nasal consonants[1].

1.1.4. Tongue Position

The position of the tongue in the mouth gives us two dimensions of classification for vowels. For this, the highest point of the tongue is located

i. in relation to its position from front to back of the mouth, and

ii. from the roof of the mouth to the floor.

Thus tongue positions of various degrees of front, central, back, and close, half-close, half-open and open are described.

1.1.5. Lip Position

The position of the lips accounts for an important part of the distinctive quality of the vowels. The lips can be rounded, neutral or spread during the articulation of the vowels . The degree

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[1] See 2.3.

of rounding is mostly related to tongue height, that is, the degree of rounding increases as the tongue is raised.

1.1.6. Jaw opening

Jaw opening can be narrow, medium or wide. Close vowels have narrow jaw opening, open vowels wide jaw opening, and half-open and half-close vowels have medium jaw opening.

1.1.7. Vowel Length

Long vowels are few in monosyllabic native Turkish words[1], and such as do occur are in words of the phonetic types $c\bar{v}$ and $\bar{v}$. In the orthography vowel length is mostly represented by vowel+ğ[2]. In the phonetic descriptions absence of any reference to length will imply that the vowel is short.

Having outlined the characteristics of vowels in general, descriptions of vowels as segments using the traditional terms of phonetic description are given in the following sections.

1.2. A Group Vowels

Amongst the various vowels in Istanbul Turkish, the first group of vowels to be examined is the open, neutral[3] group ranging from front to back. This group of vowels is called the A group vowels. The differences in quality of vowels of the A group are examined below in monosyllabic words of different phonetic types, viz. $\bar{v}$, $c\bar{v}$, cv, vc, vcc, cvc, cvcc.

1.2.1. $\bar{v}$

Long, open, central, neutral vowel, i.e. [ɯ :].

[ɯ :] ağ 'net'

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[1] For difference between native and non-native words see 3.1.

[2] See N. Waterson, 'Phonology of the Nominal Forms of the Turkish Word', BSOAS, Vol. 18, 1956, p. 582, footnote 4.

[3] Neutral refers to the lip position. See 1.1.5.

1.2.2. $\overline{cv}$

i. Palatal initial + long,open,front, neutral vowel, i.e.[a:].

[ja:]	yağ	'butter'
[ʧa:]	çağ	'era'

ii. Non palatal initial + long,open,back,neutral vowel,i.e.[ɑ:].

[bɑ:]	bağ	'vineyard'
[dɑ:]	dağ	'mountain'
[sɑ:]	sağ	'alive'

1.2.3. cv

Palatal initial + short, open, front, neutral vowel, i.e. [a].

[ja]	ya	'or'

1.2.4. vc, vcc, cvc, cvcc

In the following sections the various qualities of the vowels of the A group in non-final positions in different contexts are classified starting from the most forward quality and going to the most back. The vowels in vc and vcc types are discussed together with cvc and cvcc types as the same description applies to the vowels of all these types.

1.2.4.1. Palatal Initial – Palatal Final

Palatal consonants whether they precede or follow the vowel have a fronting effect on it, and when both the initial and the final consonants are palatal the fronting effect on this open vowel is greatest and we get the frontest and closest quality, i.e. [a].

[ʧaj]	çay	'tea'
[jaj]	yay	'spread'
[jaʃ]	yaş	'wet'
[ʃaʃ]	şaş	'be amazed'

1.2.4.2.i. Palatal Initial – Non-palatal Final

In contexts where the vowel is preceded by one of the palatal

consonants [ʤ , ʧ , ʃ , j , ʎ] and followed by a non-palatal consonant it is fully open, front, neutral, i.e. [a], more fronted at the onset than at the ending, similar to the quality in 1.2.3 above.

The non-palatal consonant that follows [a] is slightly advanced in articulation, but not enough to justify calling it palatalized, therefore a separate symbol is not used.

[ʤam]	cam	'glass'
[ʧam]	çam	' pine tree'
[ʧak]	çak	'strike'
[ʃan]	şan	'fame'
[jan]	yan	'burn'
[jas]	yas	'mourning'

1.2.4.2.ii. (Non-palatal Initial)[1] – Palatal Final

In contexts where the vowel is initial, or where it is preceded by a non-palatal consonant and followed by [ʧ, ʃ] or [j], it is fully open, front and neutral, i.e. [a] , the onset being slightly less front than the ending.

[aʧ]	aç	'open'
[saʧ]	saç	'hair'
[aʃ]	aş	'food'
[taʃ]	taş	'stone'
[aj]	ay	'month'
[kaj]	kay	'slide'

1.2.4.3. (Non-palatal Initial)– Non palatal Final

i. In contexts where the vowel is initial or preceded by a non-palatal consonant, and followed by [ɪ], the vowel is open,

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[1] ( ) are used to indicate alternative possibilities of context, e.g. the heading for paragraph 1.2.4.2.ii should be read as 'in context of non-palatal initial and palatal final, and in context of v initial and palatal final', i.e. in cvc, cvcc and vc, vcc types.

slightly advanced from central, neutral, i.e. [a].

[aɹ] ar 'honour'

[kaɹ] kar 'snow'

[saɹk] sark 'lean out'

ii. In contexts where the vowel is initial or preceded by a non-palatal consonant, and followed by one of the following: [p, t, k, n, m] it is open, central, neutral, i.e. [ɐ].

[hɐp] hap 'pill'

[kɐp] kap 'snatch'

[sɐp] sap 'stem'

[ɐt] at 'horse'

[bɐt] bat 'sink'

[tɐt] tat 'taste'

[ɐk] ak 'white'

[bɐk] bak 'look'

[tɐk] tak 'put on'

[ɐ̃n] an 'moment'

[kɐn] kan 'blood'

[tɐ̃nk] tank 'tank'

[dɐm] dam 'roof'

[zɐm] zam 'increase'

[nɐm] nam 'fame'

iii. In contexts where the vowel is initial or preceded by a non-palatal consonant, and followed by one of the following: [s, z, f, v] it is open, retracted from central, neutral, i.e. [a̲].

[a̲s] as 'hang'

[ba̲s] bas 'step on'

[kɐ̲s]	kas	'muscle'
[ɐ̲z]	az	'little'
[kɐ̲z]	kaz	'goose'
[sɐ̲z]	saz	'reed'
[ɐ̲f]	af	'forgiveness'
[rɐ̲f]	raf	'shelf'
[ɐ̲v]	av	'prey'
[sɐ̲v]	sav	'send away'

iv. In contexts where the vowel is initial or preceded by a non-palatal consonant, and followed by [ɬ], it is open, back, neutral, i.e. [ɑ], and is similar in quality to the vowel in 1.2.2.ii .

[ɑɬ]	al	'take'
[bɑɬ]	bal	'honey'
[nɑɬ]	nal	'horse shoe'
[kɑɬ]	kal	'stay'
[dɑɬ]	dal	'branch'

1.3. E Group Vowels

This is a group of front, spread vowels varying in closeness and openness between not quite fully open and half-close. Vowels of this group can occur in initial, medial and final positions in monosyllabic words.

1.3.1. $\overline{v}$ and $c\overline{v}$

(Palatalized initial)+ long, half-open, front, spread vowel, i.e. [ɛ:].

[ɛ:]	eğ	'bend'
[ɟɛ:]	değ	'touch'[1]

[dej] [1]Some speakers of Istanbul Turkish have the forms [ej] and instead.

1.3.2. cv

Palatal or palatalized consonant + half-open, front, spread vowel, i.e. [ɛ].

[jɛ]	ye	'eat'
[ɲɛ]	ne	'what'
[yɛ]	ve	'and'

1.3.3. vc, cvc, cvcc

The subdivisions of the vowels of the E group in monosyllabic words of vc, cvc and cvcc types starting with the most open quality and going to the most close are as follows:

i. In contexts where the vowel is preceded by a palatal or palatalized consonant, viz. [ɟ, ʧ, j, c, ʈ, ɖ, ʂ] and followed by the palatal lateral consonant [ʎ], the front, open, spread vowel has the most open quality of the vowels of this group, i.e. [æ·][1].

[ɟæʎ]	gel	'come'
[ʧæʎ]	çel	'attract'
[jæʎ]	yel	'wind'
[cæʎ]	kel	'bald'
[ʈæʎ]	tel	'wire'
[ɖæʎ]	del	'drill'
[ʂæʎ]	sel	'flood'

Here it must be stressed that these different vowel qualities found in monosyllabic words occur only when the words are uttered in isolation. When they are used in sentences or in suffixed forms, the quality of the vowel in question is often

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[1] For another vowel quality of the E group in vc and cvc with [ʎ] final see 1.3.3.iv b.

different. For example,

[ɟæl̻] gel 'come'

[ɟel̻ijorum] geliyorum 'I am coming.'

Such variations in quality are discussed elsewhere[1].

ii. In contexts where the vowel is initial, or preceded by a palatal or palatalized consonant and followed by [ɻ], a slightly more close variety of the vowel is found, viz. [æ̝].

[æ̝ɻ] er 'soldier'

[ɖæ̝ɻ] der 'says'

[ɖæ̝ɻʈ] dert 'sorrow'

[ɟæ̝ɻ] ger 'stretch'

[ʂæ̝ɻ] ser 'green house'

iii. In contexts where the vowel is preceded by a palatal or palatalized consonant and followed by [m̻] or [n̻][2], there is a half-open, front, spread vowel, i.e. [ɛ̝].

[ɟɛ̝m̻] gem 'bit of a bridle'

[çɛ̝m̻] hem 'also'

[jɛ̝m̻] yem 'animal feed'

[ɓɛ̝n̻] ben 'I'

[ʂɛ̝n̻] sen 'you'

[ʈɛ̝n̻] ten 'complexion'

[jɛ̝n̻] yen 'win'

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[1] See Chapter 8, pp. 170 - 179.

[2] For a different vowel quality in contexts where the vowel is followed by [m̻] and [n̻] in vc and cvc see 1.3.3.iv b.

iv. a/ In contexts where the vowel is initial or preceded by a palatal or palatalised consonant, and followed by a palatal consonant, viz. [ʧ , ʃ] or [j], the vowel is half-open, front, spread, i.e. [ɛ], slightly closer than [ɛ̝].

[ʃɛʧ]	geç	'late'
[ʂɛʧ]	seç	'choose'
[ɛʃ]	eş	'equal'
[ɖɛʃ]	deş	'drill'
[ɧɛj]	bey	'gentleman'
[ɻɛj]	rey	'vote'

b/ In vc types where the vowel is followed by [m̩, n̩] or [l̩], and in cvc types where the vowel is preceded by [n̩] or [ɧ] and followed by [m̩] or [l̩], the vowel is half-open, front, spread, i.e. [ɛ].

[ɛ̃m̩]	em	'suck'
[ɛ̃n̩]	en	'width'
[ɛl̩]	el	'hand'
[ɧɛl̩]	bel	'waist'
[n̩ɛ̃m̩]	nem	'humidity'

It must be noted that there is individual variation regarding the quality of the vowel in the production of the above. These same words can also be heard uttered with the most open quality of the E group, i.e. as [æl̩], [bæl̩], [æn̩], [n̩æm̩], but such forms are much less common.

v. In contexts where the vowel is initial,or preceded by a palatal or palatalized consonant and followed by one of the following: [p̩ , t̩ , y , f̩ , s , z̩], the vowel is half-close, front, spread, i.e. [e].

[ʤeb̥]	cep	'pocket'
[t̥eb̥]	tep	'push away with the foot'
[et̥]	et	'meat'
[ʃet̥]	set	'dike'
[ev̥]	ev	'house'
[ʃev̥]	sev	'love'
[t̥ef̥]	tef	'a musical instrument'
[eʃ]	es	'blow'
[ceʃ]	kes	'cut'
[ez̥]	ez	'press'
[b̥ez̥]	bez	'cloth'

vi. In contexts where the vowel is initial or preceded by a palatal or palatalized consonant, and followed by [c], the vowel is front, spread, slightly closer than [e], i.e. [ẹ].

[ẹc]	ek	'addition'
[cẹc]	kek	'cake'
[ʧẹc]	cek	'pull'
[p̥ẹc]	pek	'much'
[ʃẹc]	sek	'jump'

1.4. I Group Vowels

These are the vowels of the close to half-close, back, spread group. Vowels of this group are the only ones in Turkish which do not occur initially in monosyllabic words.

1.4.1. cv̄

The only vowel belonging to the I group that occurs finally is the long, half-close, back, spread vowel, i.e. [ɤ:].

[ʧɤ:]	çığ	'avalanche'
[ʝɤ:]	yığ	'pile up'
[tɤ:]	tığ	'crochet hook'

1.4.2. cvc and cvcc

Variations in the quality of the vowels of this group in cvc and cvcc, starting with the most open and going to the most close are as follows:

i. In contexts where the vowel is preceded by a palatal or non-palatal consonant and followed by a palatal consonant, viz. [ʧ, ʃ, j], or velar lateral [ɬ], the vowel is half-close, back, spread, i.e. [ɣ], of similar quality to that of vowels in 1.4.1.

[kɣʧ]	kɪç	'back'
[dɣʃ]	dɪş	'outside'
[kɣʃ]	kɪş	'winter'
[kɣj]	kɪy	'sacrifice'
[kɣɬ]	kɪl	'hair'
[jɣɬ]	yɪl	'year'

ii. In contexts where the vowel is preceded by a palatal or a non-palatal consonat, and followed by a non-palatal consonant, viz. [p , t , k , n , ɾ , x] , it is slightly more open than fully close, back and spread, i.e. [ɯ̟].

[tɯ̟p]	tɪp	'medicine'
[kɯ̟t]	kɪt	'scarce'
[sɯ̟k]	sɪk	'squeeze'
[jɯ̟k]	yɪk	'demolish'
[kɯ̟n]	kɪn	'cover'
[kɯ̟ɾ]	kɪr	'break'
[kɯ̟ɾp]	kɪrp	'shear'
[mɯ̟x]	mɪh	'nail'

iii. In contexts where the vowel is preceded by a non-palatal consonant and followed by a non-palatal sibilant, viz. [s , z], the vowel is fully close, back, spread, i.e. [ɯ].

[kɯs]	kıs	'reduce'
[kɯz]	kız	'girl'
[sɯz]	sız	'leak'

1.5. İ Group Vowels

The vowels of this group are close, front, and spread, with some slight differences in degree of frontness and closeness. All consonants in the vicinity of İ group of vowels are palatalized in articulation, those preceding being more strongly so. The palatals [ȶʃ, ʃ, j, ʎ, c, ɟ] are more strongly palatalized with vowels of the İ group than with any of the other vowels[1]. Only long vowels of this group occur finally, short vowels occur in initial and medial positions.

1.5.1. $c\bar{v}$

Palatal initial + long ,close, front, spread vowel, i.e.[i:].

[ȶʃi:]	çiğ	'raw'
[ɟi:]	giy[2]	'wear'

1.5.2. vc, vcc, cvc and cvcc

The subdivisions of the İ group vowels in monosyllabic words of vc, vcc, cvc and cvcc types, starting with the most open quality and going to the most close, are as follows :

i. The most open quality which is also slightly retracted is found

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[1] This is not marked in the phonetic transcription for simplicity of symbolization.

[2] An alternative pronunciation of this word is [ɟij].

in contexts where the vowel is initial in the syllable or preceded by a palatal or palatalized consonant, and followed by [l̪], [t̪ʃ], or [ʃ]. The vowel quality is symbolized as [i̤].

[i̤l̪]	il	'city'
[i̤l̪c]	ilk	'first'
[b̪i̤l̪]	bil	'know'
[i̤t̪ʃ]	iç	'drink'
[b̪i̤t̪ʃ]	biç	'cut out'
[i̤ʃ]	iş	'work'
[d̪i̤ʃ]	diş	'tooth'

ii. In contexts where the vowel is initial or preceded by a palatal or palatalized consonant and followed by one of the following: [p̪ , t̪ , ɲ , m̪ , ɾ̪ , f̪][1], it is close, front, spread, i.e. [i].

[d̪ip̪]	dip	'bottom'
[t̪ip̪]	tip	'type'
[it̪]	it	'push'
[b̪it̪]	bit	'louse'
[iɲ]	in	'den'
[b̪iɲ]	bin	'get on'
[t̪im̪]	çim	'grass'
[cim̪]	kim	'who'
[ciɾ̪]	kir	'dirt'

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[1] There is an exception here : In cvc type if both the initial and final consonants are [m̪], then we have the most close quality of İ group, i.e. [i̤], e.g. [m̪i̤m̪].

[ɓiɣ] bir 'one'

[ʒifʈ] zift 'tar'

iii. In contexts where the vowel is preceded by a palatal or palatalized consonant and followed by [ʃ], or [ʒ], or [c], it is very close, front, spread, i.e. [i̟].

[i̟ʃ] is 'smoky'

[pi̟ʃ] pis 'dirty'

[i̟ʒ] iz 'trail'

[ɓi̟ʒ] biz 'we'

[ʧi̟ʒ] çiz 'draw'

[ɖi̟c] dik 'steep'

1.6. O Group Vowels

The vowels of the O group vary between half-open and half-close, and are back and rounded. In monosyllabic words with vowels of this group, lip rounding starts at the beginning of the word and lasts throughout the whole utterance. Vowels of the O group occur in initial, medial and final positions.

1.6.1. v̄ and cv̄

Non-palatal initial + long, half-open, back, rounded vowel, i.e. [ɔ:].

[bɔ:] boğ 'strangle'

[dɔ:] doğ 'be born'

1.6.2. v

Half open, back, rounded, i.e. [ɔ].

[ɔ] o 'it'

1.6.3. vc, cvc and cvcc

In vc, cvc and cvcc types O group vowels can be subdivided as follows, starting with the most open quality and going to the most close.

i. In contexts where the vowel is initial or preceded by a palatal or non-palatal consonant, and followed by [ʧ], [ʃ], [j] or [ɬ] it is slightly closer than half-open, back, rounded, i.e. [ɔ̝].

[kɔ̝ʧ]	koç	'ram'
[bɔ̝ʃ]	boş	'empty'
[xɔ̝ʃ]	hoş	'pleasant'
[ɔ̝j]	oy	'vote'
[sɔ̝j]	soy	'peel'
[tɔ̝j]	toy	'inexperienced'
[ɔ̝ɬ]	ol	'be'
[kɔ̝ɬ]	kol	'arm'
[jɔ̝ɬ]	yol	'road'

ii. In contexts where the vowel is initial or preceded by a palatal or non-palatal consonant and followed by one of the following : [p, t, k, n, m, ɸ, w, x], it is slightly more open than half-close, i.e. [o̞].

[ko̞p]	kop	'be separated'
[o̞t]	ot	'grass'
[o̞w]	ov	'rub'
[ko̞w]	kov	'send away' [1]

[1] [o̞w] and [ko̞w] can have the alternative pronunciations [ɔ:] and [kɔ:] with some speakers.

[o̥k]	ok	'arrow'
[ʧo̥k]	çok	'very'
[o̥n]	on	'ten'
[so̥n]	son	'last'
[ʃo̥m]	şom	'bad'
[so̥m]	som	'pure'
[ko̥ɸ]	kof	'weak'
[ko̥ɹ]	kor	'fire'
[zo̥ɹ]	zor	'difficult'

iii. In contexts where the vowel is preceded by a palatal or non-palatal consonant and followed by [s] or [z], it is half-close, back, and rounded, i.e. [o].

[dost]	dost	'friend'
[post]	post	'skin of an animal'
[boz]	boz	'off white'
[koz]	koz	'advantage'

1.7. Ö Group Vowels

The vowels of the Ö group are front, rounded, and vary between half-open and half-close. The vowels of this group do not occur fina‿lly[1]. In initial and medial positions, vowels of

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[1] There are a few exceptions to this general statement. The words [dœw],[sœw],[œw] have the alternative pronunciations [dœ:],[sœ:],[œ:] with some speakers when uttered in isolation .

this group are always short. In monosyllabic words with vowels of this group, lip rounding starts at the beginning of the word and lasts throughout the whole utterance. Consonants in the vicinity of vowels of the Ö group have some degree of palatalization. In vc and vcc types the vowels are opener than the vowels in cvc and cvcc even when followed by the same consonants.

1.7.1. vc and vcc

i. In contexts where the vowel is followed by [l̪] or [t̪ʃ], it is slightly more open than half-open, front, rounded, i.e. [œ̝] .

[œ̝l̪]	öl	'die'
[œ̝l̪t̪ʃ]	ölç	'measure'
[œ̝t̪ʃ]	öç	'revenge'

ii. In contexts where the vowel is followed by one of the following: [p̪ , t̪ , ɲ , ɾ̪ , y], it is half-open, front, rounded, i.e. [œ].

[œp̪]	öp	'kiss'
[œt̪]	öt	'sing'
[œ̃ɲ]	ön	'front'
[œɾ̪]	ör	'knit'
[œw̪]	öv	'praise'

iii. In contexts where the vowel is followed by [z̪], it is slightly more open than half-close, front, rounded, i.e. [ø̝].

[ø̝z̪]	öz	'essence'

1.7.2. cvc and cvcc

Vowels of the Ö group are now examined in cvc and cvcc types, starting with the most open quality and going to half-close.

i. In contexts where the vowel is preceded by a palatal or palatalized

consonant and followed by one of the following : [ɭ̟ , ʧ , ʃ , j], it is half-open, front, rounded, i.e. [œ] .

[ʧœɭ̟]	çöl	'desert'
[ʄœɭ̟]	göl	'lake'
[ʄœʧ]	göç	'migration'
[cœʃc]	köşk	'mansion'
[cœj]	köy	'village'

ii. In contexts where the vowel is preceded by a palatal or palatalized consonant and followed by one of the following : [p̟ , ɲ , m̟ , ɟ , y], it is slightly more close than half-open, front, rounded, i.e. [œ̟] .

[ʧœ̟p̟]	çöp	'rubbish'
[ʄœ̟m̟]	göm	'bury'
[jœ̟ɲ]	yön	'direction'
[cœ̟ɟ]	kör	'blind'
[ɖ̟œ̟ɟʈ̟]	dört	'four'
[ɖ̟œ̟w]	döv	'beat'

iii. In contexts where the vowel is preceded by a palatal or palatalized consonant and followed by [z̟] or [c], it is half-close, front, rounded, i.e. [ø] .

[ʧøz̟]	çöz	'solve'
[ʄøz̟]	göz	'eye'
[ʧøc]	çök	'sit down'
[ʄøc]	gök	'sky'

1.8. U Group Vowels

Vowels of the U group are close, back, rounded, with slight differences in their degree of closeness and backness. In monosyllabic words with vowels of this group there is rounding throughout the whole utterance. Vowels of this group can occur in initial, medial and final positions.

1.8.1. cv̄

Non-palatal initial + long, close, slightly advanced from back, rounded vowel, i.e. [u̟:].

[tu̟:] tuğ 'plume'

1.8.2. cv

Palatal or non-palatal initial + close, slightly advanced from back, rounded vowel similar in quality to [u̟:] above, i.e. [u̟].

[bu̟] bu 'this'

[su̟] su 'water'

[ʃu̟] şu 'that'

1.8.3. vc, cvc and cvcc

In contexts where the vowel is initial, or preceded by a non-palatal consonant and followed by one of the following: [ʧ , ʃ , j , ɬ], it is close, slightly advanced from back, rounded, i.e. [u̟] as in 1.8.2 above.

[u̟ʧ] uç 'fly'

[su̟ʧ] suç 'guilt'

[u̟ʃ] tuş 'knock out'

[du$\underset{+}{\int}$]	duş	'shower'
[$\underset{+}{u}$j]	uy	'assimilate'
[xu$\underset{+}{j}$]	huy	'habit'
[bu$\underset{+}{ɬ}$]	bul	'find'
[du$\underset{+}{ɬ}$]	dul	'widow'
[ku$\underset{+}{ɬ}$p]	kulp	'handle'

ii. In contexts where the vowel is initial,or preceded by a palatal or non-palatal consonant, and followed by one of the following : [t , m , n , ɹ , x], it is close, back, rounded, i.e. [u] .

[jut]	yut	'swallow'
[ũm]	um	'hope'
[kũm]	kum	'sand'
[ũn]	un	'flour'
[sũn]	sun	'offer'
[kuɹt]	kurt	'wolf'
[juɹt]	yurt	'country'
[ɹux]	ruh	'soul'
[∫ux]	şuh	'dazzling'

iii. In contexts where the vowel is initial, or preceded by a non-palatal consonant, and followed by [s] or [z], it is very close, back, rounded, i.e. [u̟].

[u̟s]	us	'mind'
[su̟s]	sus	'be quiet'

[bu̥z] buz 'ice'

[tu̥z] tuz 'salt'

1.9. Ü Group Vowels

Vowels of this group are close, front, rounded, and have only slight differences in their degree of closeness. Vowels of this group are short and do not occur finally[1]. Consonants in the vicinity of vowels of the Ü group are palatalized. Words with vowels of this group have rounding throughout the whole utterance.

1.9.1. vc, vcc, cvc and cvcc

Vowels of the Ü group in vc, vcc, cvc and cvcc types can be grouped as follows, starting with the most open quality.

i. In contexts where the vowel is initial or preceded by a palatal or palatalized consonant, and followed by one of the following: [ʧ , ʃ, j , ɭ], it is slightly more open than close, front, rounded, i.e. [y̥].

[y̥ʧ] üç 'three'

[ɟy̥ʧ] güç 'difficult'

[ʤy̥ʃ] düş 'fall'

[ty̥j] tüy 'feather'

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[1] In monosyllabic words the only exception to this is the word [ty̥j] tüy 'feather' which has the phonetic form [ty̥:] with some speakers.

[cy̨l̨] kül 'ash'

[ʈy̨l̨] tül 'lace'

ii. In contexts where the vowel is initial or preceded by a palatal or palatalized consonant, and followed by one of the following: [p̡ , ʈ , ɸ̡ , ɲ , m̡ , ɻ̡], it is close, front, rounded, ie. [y].

[cyp̡] küp 'urn'

[ʂyʈ] süt 'milk'

[cyɸ̡] küf 'mould'

[ỹɲ] ün 'fame'

[ɟỹɲ] gün 'day'

[ʈỹm̡] tüm 'all'

[cyɻc] kürk 'fur'

iii. In contexts where the vowel is initial or preceded by a palatal or palatalized consonant, and followed by [ʂ], [ʐ̡] or [c], it is very close, front, rounded, i.e. [y̨].

[y̨ʂʈ] üst 'top'

[ʂy̨ʂ] süs 'ornament'

[ɖy̨ʐ̡] düz 'flat'

[ʂy̨ʐ̡] süz 'strain'

[ɓy̨c] bük 'bend'

[jy̨c] yük 'load'

CHAPTER TWO

Description and Classification of Consonants

2.1. Introduction

A phonetic description and classification of consonants in Istanbul Turkish as pronounced in slow speech is given in this chapter [1]. The analysis is applicable to the description of consonants in both monosyllabic and polysyllabic words[2], but examples are given mostly of monosyllabic words for easy reference to vowel qualities in Chapter 1.[3]

Consonants are grouped according to type of articulation as:

i. stops

ii. sibilant continuants

iii. non-sibilant continuants

iv. nasals .

Within these groups consonants are further classified according to their manner and place of articulation, and the state of the vocal cords. During the production of a consonant the lips are

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[1] The point that the phonetic description in this chapter is based on slow speech is important as consonants in various words can be produced in a different way in quick speech, see Chap. 8, pp.170-179.

[2] This does not include suffixed forms.

[3] A separate word list is not given for consonants as the quality of consonants can be seen on the word list given for vowels in Appendix II.

rounded in contexts where a rounded vowel precedes and/or follows that consonant within the same syllable[1]. In the context of spread or neutral vowels the lips are not rounded during the production of the consonants. All consonants are articulated with a pulmonic egressive air stream, and all except nasals have velic closure.

The consonants have rather tense articulations in the vicinity of vowels of the E, İ, Ö and Ü groups. Tenseness in articulation is most pronounced when a consonant is preceded and/or followed by vowels of the E and İ groups. In all other contexts consonants have lax articulations.

2.2. Stops

Stops are produced with a complete closure of the air passage, and are grouped into plosives and affricates according to the type of release. Voiceless stops have weak aspiration.

2.2.1. Plosives

Plosives are produced with a sudden release of the completely obstructed air stream. According to the place of articulation and the state of the vocal cords, plosives are subdivided as follows:

2.2.1.1. Voiceless, bilabial plosive – [p]

[p] occurs in initial and final positions[2] preceded or followed by vowels of the A,I,O and U groups. It also occurs

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[1] The feature of lip rounding is not marked in the transcription for simplicity of symbolization.

[2] 'Initial' and 'final' refer to syllable initial and final positions which generally coincide with word initial and final. If cont.

post-consonantally in vcc and cvcc.

[paj̥]	pay	'share'
[puɬ]	pul	'stamp'
[sɐ̃p]	sap	'stem'
[kuɬp]	kulp	'handle'

2.2.1.2. Voiceless, palatalized, bilabial plosive - [p̡]

[p̡] is found preceded or followed[1] by vowels of the E, İ, Ö,Ü groups.

[p̡iș]	pis	'dirty'
[p̡yɻt̡yc]	pürtük	'knobby'
[p̡ɛj]	pey	'deposit'
[ip̡]	ip	'string'
[cyp̡]	küp	'urn'
[œp̡]	öp	'kiss'

2.2.1.3. Voiced, bilabial plosive - [b]

[b] occurs preceded or followed by vowels of A, I, O, U groups, but it does not occur in word final position.

[bɐk]	bak	'look'
[bɯk]	bık	'get fed up'

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footnote cont.
there is a restriction in the position of a certain consonant this is specified, e.g. where a consonant can occur in syllable initial position only,i.e. not word initial, this is explained when that consonant is discussed, e.g. the rolled continuant,2.5.4.

[1] i.e.'preceded or followed' within the same syllable only.

[bɔʃ]	boş	'empty'
[buɬ]	bul	'find'
[a̠bla]	abla	'elder sister'

2.2.1.4. Voiced, palatalized, bilabial plosive - [ḇ]

[ḇ] occurs preceded or followed by vowels of the E, İ, Ö, Ü groups. It does not occur in word final position.

[ḇi̬l̬]	bil	'know'
[ḇɛj]	bey	'sir'
[ḇœ̬l̬]	böl	'divide'
[ḇy̬c]	bük	'bend'
[ʃeḇʒɛ]	sebze	'vegetable'
[ciḇɻiṯ]	kibrit	'match'
[ɟyḇɻɛ]	gübre	'fertilizer'

2.2.1.5. Voiceless, dental plosive - [t]

[t] can occur preceded or followed by vowels of the A, I, O, U groups. It also occurs as the final consonant in cc clusters.

[ta̠s]	tas	'cup'
[tɯ̬p]	tip	'medicine'
[toz]	toz	'dust'
[kɯ̬t]	kıt	'scarce'
[but]	but	'thigh'
[o̬t]	ot	'grass'
[xaɬt]	halt	'nuisance'
[kaɻt]	kart	'out of season'

2.2.1.6. Voiceless, palatalized, dental plosive – [t̪]

[t̪] occurs preceded or followed by vowels of the E, İ, Ö, Ü groups.

[t̪ɛc]	tek	'single'
[t̪ip]	tip	'type'
[t̪œɾ̪pʏ]	törpü	'nail file'
[t̪ʏl̪]	tül	'veil'
[ɛt̪]	et	'meat'
[ʤil̪t̪]	cilt	'volume'
[œt̪]	öt	'sing'
[ʃʏt̪]	süt	'milk'

2.2.1.7. Voiced, dental plosive – [d]

[d] occurs only initially and when followed by vowels of the A, I, O, U groups.

[dɐm]	dam	'roof'
[dɤʃ]	dış	'outside'
[dost]	dost	'friend'
[duɾ]	dur	'stop'

2.2.1.8. Voiced, palatalized, dental plosive – [d̪]

[d̪] occurs only initially and when followed by vowels of the E, İ, Ö, Ü groups.

[d̪æɾ̪t̪]	dert	'sorrow'
[d̪iz̪]	diz	'knee'
[d̪œɲ]	dön	'turn'
[d̪ʏʃ]	düş	'fall'

2.2.1.9. Voiceless, palatal plosive – [c][1]

[c] occurs preceded or followed by vowels of the E, İ, Ö, Ü groups.

[cẹs]	kes	'cut'
[ciɻ]	kir	'dort'
[cœɻ]	kör	'blind'
[cẏlˌ]	kül	'ash'
[ʈẹc]	tek	'single'
[ɖịc]	dik	'steep'
[ʂøc]	sök	'uproot'
[bẏc]	bük	'bend'

2.2.1.10. Voiceless, velar plosive – [k][2]

[k] occurs preceded or followed by vowels of the A, I, O, U groups.

[kɐz]	kaz	'goose'
[kɯɻ]	kır	'break'
[kọɻ]	kor	'glowing coal of a fire'
[kuɻ]	kur	'wind'
[ɐk]	ak	'white'
[sɯk]	sık	'close'
[ọk]	ok	'arrow'
[oɬuk]	oluk	'gutter'

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[1] See Palat.1, p. 188.

[2] See Palat. 2, p. 188.

2.2.1.11. Voiced, palatal plosive - [ɟ] [1]

[ɟ] occurs initially only when followed by vowels of the E, İ, Ö, Ü groups.

[ɟæl̩]	gel	'come'
[ɟiɟ]	gir	'enter'
[ɟœl̩]	göl	'lake'
[ɟyl̩]	gül	'rose'

2.2.1.12. Voiced, velar, plosive - [g]

[g] occurs initially only when followed by vowels of the A, I, O, U groups. It does not occur initially in monosyllabic words except in loan-words and onomatopoeic words[2]. Examples of [g] in polysyllabic words are as follows:

[gɐgɐ]	gaga	'beak'
[gɯɤrtlɐk]	gırtlak	'larynx'
[gõndʒa]	gonca	'rose bud'

2.2.1.13. Glottal Stop

Apart from its occasional use in unassimilated loanwords, the glottal stop does not usually occur in the type of Istanbul Turkish described here[3], although some speakers may have a glottal stop at word initial position when there is emphasis on the word, or with exclamations. Baldwin[4] says that the glottal stop occurs

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[1] See Palat. 17, p.190.

[2] See Chap 7, pp. 149-164

[3] See Introduction, p.xviii.

[4] J.R.Baldwin, 'The Glottal Stop in Turkish', Maître Phonétique, No. 126, 1966.

regularly in Turkish as reinforcing oral closure of voiceless plosives or replacing them altogether, but he bases his analysis mainly on the speech of a Cypriot Turk whose Turkish is different from Istanbul Turkish. Baldwin also mentions that in the speech of some Turks, younger than his original informants, he did not notice any glottalization. This shows that the younger generations, who, through the influence of language reform, have been exposed to Arabic and Persian influence much less than the previous generations, tend not to have the glottal stop in their speech. As it is not a regular feature of Istanbul Turkish, the glottal stop is not included in the phonetic description given here.

2.2.2. Affricates

Affricates are produced by maximum stricture and slow release of the air stream so that friction is heard on the release. The friction and occlusion are homorganic. Affricates are classified, according to the place of articulation and the state of the vocal cords, as follows:

2.2.2.1. Voiceless, palato-alveolar affricate – [ʧ][1]

[ʧ] occurs preceded or followed by vowels of any of the eight groups [2], but in the vicinity of front vowels, i.e. vowels of the E, İ, Ö, Ü. groups, it has a more palatal articulation as is the case with the other consonants. However, palatalization is not marked in the phonetic transcription for

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[1] See Palat. 17, p.190.

[2] Vowels of the A, E, I, İ, O, Ö, U, Ü groups.

simplicity of symbolization[1]. It can also occur as the final consonant of the cluster in cvcc. [ʧæl̪] çel 'attract'

[ʧi̪z] çiz 'draw'

[ʧyɤ̞yc] çürük 'rotten'

[ʃɛʧ] seç 'choose'

[i̪ʧ] iç 'drink'

[ʧukuɤ̟] çukur 'ditch'

[kɔ̟ʧ] koç 'ram'

[u̟ʧ] uç 'fly'

[xaɤʧ] harç 'trimmings'

2.2.2.2. Voiced, palato-alveolar affricate - [ʤ]

[ʤ] occurs only initially, and may be followed by any of the vowels of the A, E, I, İ, O, Ö, U, Ü groups. In the vicinity of front vowels it has a more palatal articulation which is not marked in the transcription.

[ʤa̟n] can 'life'

[ʤɛp̟] cep 'pocket'

[ʤimɣi] cimri 'miser'

[ʤɔ̟ʃ] çoş 'be merry'

[ʤœmɛɤ̞t̪] cömert 'generous'

[uʤu̟z] ucuz 'cheap'

[aʤɤ·] acı 'bitter'

---

[1] This also applies to the voiced palato-alveolar affricate [ʤ], the voiceless and voiced palato-alveolar sibilant continuants [ʃ], [ʒ], and the voiced, palatal frictionless continuant [j].

2.3. Nasals

Nasals are produced by the articulators forming a stricture of complete closure, but without a simultaneous velic closure. Thus the air stream which is obstructed in the mouth is expelled through the nose. The vowels which precede nasals in the following contexts are nasalized:

i. vowel + nasal[1], e.g.

[œ̃ɲ] ön 'front'

[ɐ̃n] an 'moment'

ii. nasal + vowel + nasal[2], e.g.

[mũ̟m] mum 'candle'

[xanũ̟m] hanım 'lady'

iii. c + vowel + nasal + stop[3], e.g.

[ɟɛ̃ŋʗ] genç 'young'

[sỹŋ̟ʝy] süngü 'bayonet'

iv. c + vowel + nasal + sibilant[4], e.g.

[dɐ̃ns] dans 'dance'

[ʃã̟ns] şans 'luck'

v. c + vowel + nasal + [j][5], e.g.

[bɐ̃mja̟] bamya 'okra'

In similar contexts, i.e. nasal + [j], there is no contact for the nasal except where it is a bilabial nasal as in [bɐ̃mja̟] which can be compared to [bỹjɛ] bünye 'structure'

[cỹjɛ] künye 'patronymic'[6] except in an emphatic style of speech.

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[1] See Mingo. 1, p. 197.
[2] See Mingo. 2, p. "
[3] See Mingo. 3, p. "
[4] See Mingo. 4, p. 198.
[5] See Mingo. 6, p. "
[6] See Mingo. 5, p. "

Vowel nasality is not marked in the rest of the phonetic transcription as the contexts in which it occurs have been given above.

2.3.1. Voiced, palatalized, bilabial nasal - [mʲ]

[mʲ] occurs preceded or followed by vowels of the E, İ, Ö, Ü groups.

[mʲɛlʲɛc]	melek	'angel'
[mʲilʲ]	mil	'thin, iron bar'
[ɟœmʲ]	göm	'bury'
[tʲymʲ]	tüm	'all'

2.3.2. Voiced, bilabial nasal - [m]

[m] occurs preceded or followed by vowels of the A, I, O and U groups. It can also occur preconsonantally in cvcc type.

[mɑɫ]	mal	'property'
[mɯsɯɾ]	mısır	'corn'
[som]	som	'pure'
[mum]	mum	'candle'
[zɐmk]	zamk	'glue'

2.3.3. Voiced, palatalized, denti-alveolar nasal - [nʲ][1]

[nʲ] occurs preceded or followed by vowels of the E group.

[bʲænʲ]	ben	'I'
[nʲɛsnʲɛ]	nesne	'thing'
[ɛnʲ]	en	'width'

2.3.4. Voiced, denti-alveolar nasal - [n][2]

[n] occurs preceded or followed by vowels of the A, I, O and U groups.

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[1] See Palat. 15, p.190.

[2] See Palat. 16, p. " .

[naɹ]	nar	'pomegrenate'
[nuɹ]	nur	'light'
[nokta]	nokta	'point'
[on]	on	'ten'
[an]	an	'moment'
[kun]	kın	'cover'

2.3.5. Voiced, palatal nasal – [ɲ]

[ɲ] occurs preceded or followed by vowels of the İ, Ö, Ü groups.

[ɲijet]	niyet	'intention'
[ɲycte]	nükte	'joke'
[iɲ]	in	'den'
[yɲ]	ün	'fame'
[œɲ]	ön	'front'

2.3.6. Voiced, pre-velar nasal – [ŋ̟]

[ŋ̟] occurs followed by a voiced or voiceless palatal plosive, i.e. [ɟ] or [c], and preceded by a front vowel.

[ʒeŋ̟ɟiɲ]	zengin	'rich'
[ɹeŋ̟c]	renk	'colour'
[ʃyŋ̟ɟy]	süngü	'bayonet'

2.3.7. Voiced, velar nasal – [ŋ]

[ŋ] occurs followed by a voiced or voiceless velar plosive, i.e. [g] or [k], and preceded by a back vowel.

[baŋka]	banka	'bank'
[kaŋgaɬ]	kangal	'coil'
[suŋguɹ]	sungur	'falcon'

2.4. Sibilant Continuants

Sibilant continuants are produced by the blade of the tongue being raised to the hard palate, and by the narrowing of the air passage which results in friction and a hissing sound, i.e. sibilance, as air from the lungs passes through the vocal tract. Sibilants are classified as follows:

2.4.1. Voiceless, palatalized, alveolar sibilant — [s̬] [1]

[s̬] occurs preceded or followed by vowels of the E, Ï, Ö and Ü groups. It also occurs as the first consonant of clusters in vcc and cvcc.

[s̬æl̬]	sel	'flood'
[s̬i̬l̬]	sil	'wipe'
[s̬øz̬]	söz	'speech'
[s̬yt̬]	süt	'milk'
[ce̬s̬]	kes	'cut'
[p̬i̬s̬]	pis	'dirty'
[y̬s̬t̬]	üst	'top'

2.4.2. Voiceless, alveolar šibilant — [s] [2]

[s] occurs preceded or followed by vowels of the A, I, O and U groups. It also occurs as the first consonant of clusters in vcc and cvcc.

[sɐt]	sat	'sell'
[sɯ̇ɹ]	sır	'secret'

---

[1] See Palat. 3, p. 188.

[2] See Palat. 4, " .

[sɔɫ]	sol	'left'
[sux]	sur	'city walls'
[kɑs]	kas	'muscle'
[kɯs]	kɪs	'reduce'
[uɫus]	ulus	'nation'
[dost]	dost	'friend'

2.4.3. Voiceless, palato-alveolar sibilant [ʃ][1]

[ʃ] occurs preceded or followed by vowels of any of the eight groups. It also occurs preconsonantally in cvcc. In the vicinity of front vowels, [ʃ] has a more palatal articulation which is not marked in the transcription.

[ʃap]	şap	'a salty chemical'
[ʃ ɛj]	şey	'thing'
[ʃilʧɛ]	şilte	'mattress'
[ʃœlæŋ]	şölen	'feast'
[ʃɯk]	şɪk	'elegant'
[ʃu]	şu	'that'
[kɔʃ]	koş	'run'
[taʃ]	taş	'stone'
[lɛʃ]	leş	'carcass'
[dʒyʃ]	düş	'dream'
[cœʃc]	köşk	'mansion'

---

[1] See Palats. 5 and 6, p.188.

2.4.4. Voiced, palatalized, alveolar sibilant [ʒʲ][1].

[ʒʲ] occurs preceded or followed by vowels of E, İ, Ö and Ü groups.

[ʒʲæɾdɛ]	zerde	'apricot'
[ʒʲilʲ]	zil	'bell'
[yʒʲymʲ]	üzüm	'grapes'
[iʒʲ]	iz	'trail'
[øʒʲ]	öz	'essence'
[bʲyʒʲ]	büz	'constrict'

2.4.5. Voiced, alveolar sibilant [z] [2]

[z] occurs preceded or followed by vowels of the A, I, O and U groups.

[zɯt]	zıt	'opposite'
[zoɣ]	zor	'difficult'
[uzun]	uzun	'long'
[zaɾ]	zar	'dice'
[az]	az	'little'
[kɯz]	kız	'girl'
[toz]	toz	'dust'
[tuz]	tuz	'salt'

[ʒʲ] and [z] have some devoicing at word final position, but not as much as to consider them as voiceless[3].

---

[1] See Palat. 7, p.189.

[2] See Palat. 8, " .

[3] For instrumental evidence see Spec. 1, p.191. Devoicing is not shown in the phonetic transcription for simplicity of symbolization.

2.4.6. Voiced, palato-alveolar sibilant [ʒ]

[ʒ] occurs preceded or followed by vowels of A,E, İ, Ö and Ü groups and it has a more palatal articulation in the vicinity of front vowels[1]. Its occurence is limited to unassimilated loanwords[2].

2.5. Non-sibilant Continuants

Non-sibilant continuants are produced by a slow release of the partially obstructed air stream without any sibilance. They are grouped as :

i. fricatives

ii. frictionless continuants

iii. laterals

iv. rolled continuants

v. flapped continuants

2.5.1. Fricatives

Fricatives are produced with a close approximation of the articulators thus producing audible friction as the air passes through the vocal tract. According to the place of articulation and the state of the vocal cords, fricatives are subdivided as follows:

2.5.1.1. Voiceless, palatalized, bilabial fricative [ɸʲ]

[ɸʲ] occurs preceded or followed by vowels of the Ö and Ü groups.

[cœɸʲtɛ]	köfte	'hamburger'
[cyɸʲ]	küf	'mould'

---

[1] See 2.2.2.1.

[2] For examples of [ʒ] in various contexts, see 3.2.iii.

2.5.1.2. Voiceless, bilabial fricative [ɸ]

[ɸ] occurs preceded or followed by vowels of O and U groups.

[ɸundɐ]	funda	'heath'
[uɸuk]	ufuk	'horizon'
[koˌɸ]	kof	'hollow'

2.5.1.3. Voiceless, palatalized, labio-dental fricative [fʲ]

[fʲ] occurs preceded or followed by vowels of the E and İ groups.

[fʲiˌlʲ]	fil	'elephant'
[fʲɛlʲeˌc]	felek	'fate'

2.5.1.4. Voiceless, labio-dental fricative [f]

[f] occurs in the contexts where it is preceded or followed by vowels of the A and I groups.

[fɑ̈ɫ]	fal	'fortune telling'
[ɐ̲f]	af	'forgiveness'
[sɯnɯˌf]	sınıf	'class'

2.5.1.5. Voiceless, palatal fricative [ç][1]

[ç] occurs preceded or followed by vowels of the E, İ, Ö and Ü groups.

[çæˌʒ]	her	'each'
[çiˌtʃ]	hiç	'none'
[çyˌʒ]	hür	'free'
[çœˌʒɪˌytʃ]	hörgüç	'hump'
[ɛçlʲijeˌt]	ehliyet	'ability'

---

[1] See Spec. 3, p. 192.

2.5.1.6. Voiceless, velar fricative [x][1]

[x] occurs preceded or followed by vowels of the A, I, O and U groups. Velar friction is weak during the production of [x]. In the spectrogram with vowels of the U group [x] shows a stretch on the voice bar that looks like voicing, but this seems to be due to breathy onset + close lip rounding rather than voicing[2].

[xɐ̲stʊ]	hasta	'sick'
[xo̤ʃ]	hoş	'pleasant'
[xu̲j]	huy	'habit'
[xṳɹs]	hırs	'anger'

2.5.1.7. De-voiced, post-alveolar flapped fricatives

In absolute final position, flapped consonants [3] are devoiced and have friction in their production [4]. They may therefore be classed as fricatives.

2.5.1.7.1. De-voiced, palatalized, post-alveolar, flapped fricative [ɾ̟][5]

[ɾ̟] occurs finally preceded by vowels of the E, İ, Ö and Ü groups[6].

[ɟæ̤ɾ̟]	ger	'stretch'
[ciɾ̟]	kir	'dirt'

---

[1] See Spec. 4. p.192.

[2] See Spec. 5.p.193.

[3] See 2.5.5.

[4] See Spec. 6,p.193.

[5] See Palat. 9. p.189.

[6] [ɾ̟] is preceded by a vowel of the A group in a few unassimilated words, for which see 3.2.iv.

[cœ̟ɻ] kör 'blind'

[ʃyɻ] sür 'drive'

2.5.1.7.2. Devoiced, post-alveolar, flapped fricative [ɹ][1]

[ɹ] occurs finally/followed by vowels of the A, I, O and U groups.

[saɹ] sar 'pack'

[kuɹ] kır 'countryside'

[ko̟ɹ] kor 'glowing coal of a fire'

[suɹ] sur 'city walls'

2.5.2. Frictionless Continuants

Frictionless continuants are produced with open approximation of the articulators with central passage of the air stream, so that no audible friction is produced. Frictionless continuants are sub-divided as follows.

2.5.2.1. Voiced, palatalized, bilabial frictionless continuant [ɥ]

[ɥ] occurs preceded by vowels of the Ö group[2].

[œɥ] öv 'praise'

[dœ̟ɥ] döv 'beat'

[ʃœ̟ɥ] söv 'curse'[3].

2.5.2.2. Voiced bilabial frictionless continuant [w]

[w] occurs preceded or followed by vowels of the O and U groups.

[wuɹ] vur 'hit'

---

[1] See Palat. IO, p.189.

[2] [ɥ] occurs initially in unassimilated loanwords only.

[3] See p.18, footnote 1 .

[kn̥w]	kov	'send away'
[n̥w]	ov	'rub'[1]
[kɔwuk]	kovuk	'cavity'

2.5.2.3. Voiced, palatalized, labio-dental frictionless continuant [y̮].

[y̮] occurs preceded or followed by vowels of the E and I groups. It also occurs as the first consonant of the cluster in cvcc.

[yɛɾ̮ey]	verev	'diagonal'
[yi̯ʃn̥ɛ]	viŝne	'cherry'
[ɟœr̮ey]	görev	'duty'
[ʒ̮eyc]	zevk	'pleasure'

2.5.2.4. Voiced, labio-dental frictionless continuant [v]

[v] occurs preceded or followed by vowels of the A and I groups. It does not occur in word final position preceded by a vowel of the I group.

[vaɹ]	var	'there is'
[kɐvɐk]	kavak	'poplar'
[kuvɤɬʤum]	kivılcım	'spark'
[e̯v]	av	'prey'

2.5.2.5. Voiced, palatal frictionless continuant [j]

[j] occurs preceded or followed by any of the vowels of the eight groups. It has a more palatal articulation in the vicinity of front vowels. In absolute final position [j] is slightly devoiced, for which see Spec. 5, p 193.

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[1] See p. 17 , footnote 1 .

[jo̤nʤa̤]	yonca	'clover'
[jyɣy̤c]	yüzük	'ring'
[jɛʃi̤lʲ]	yeşil	'green'
[uza̤j]	uzay	'space'
[kɯjɤ]	kıyı	'shore'
[ʃyŋ̤ɛj]	güney	'south'

2.5.3. Laterals

In the production of the laterals the airstream is obstructed in the centre of the vocal tract by a stricture of complete closure, but escapes round the sides of the obstruction. The laterals are subdivided as follows:

2.5.3.1. Voiced, denti-alveolar lateral [l]

[l] occurs in syllable initial position followed by [a] or [ɐ] provided that the syllable is not the initial syllable in a word.

[sɐlɐk]	salak	'stupid'
[pɐlɐmut]	palamut	'small tunny'
[xɐla]	hala	'aunt'

2.5.3.2. Voiced, palatalized, denti-alveolar lateral [lʲ][1]

[lʲ] occurs in the following contexts:

i. in syllable initial or final position preceded or followed by a vowel of the E, İ, Ö, Ü groups[2].

[lʲɛʃ]	leş	'carcass'

---

[1] See Palat. 13, p.190.

[2] For the contexts where [lʲ] occurs with a back vowel see loanwords, 3.2.v.

[ˌsælˌ]	sel	'flood'
[yˌlˌcy]	ülkü	'ideal'
[œˌlˌ]	̈ol	'die'
[cˌiˌlˌ]	kil	'soil'

ii. in monosyllabic words of vcc type as the first consonant of the cluster.

[iˌlˌc]	ilk	'first'
[œˌlˌtʃ]	ölç	'measure'

2.5.3.3. Voiced, velarized, denti-alveolar lateral [ɬ][1]

[ɬ] occurs preceded or followed by vowels of the A, I, O and U groups. It can also occur as the first consonant of the cluster in vcc and cvcc types followed by a voiceless plosive and preceded by a back vowel.

[kɔ̣ɬ]	kol	'arm'
[kuɬ]	kul	'servant'
[bɑɬ]	bal	'honey'
[kɣɬ]	kıl	'hair'
[uɬu]	ulu	'high'
[ɣɬɯk]	ılık	'warm'
[ɑɬt]	alt	'bottom'
[xɑɬk]	halk	'people'

2.5.4. Rolled Continuants

The rolled continuants are produced by the repeated striking of the active articulator against the passive articulator.

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[1] See Palat. 14, p.190.

During the production of rolled continuants in Istanbul Turkish, the tip of the tongue strikes against the hard palate. These consonants occur only in syllable initial position when preceded and followed by vowels, i.e. between two vowels.

2.5.4.1. Voiced, palatalized, alveolar rolled continuant [ɾʲ][1]

[ɾʲ] occurs in intervocalic positions preceded and followed by vowels of the E, İ, Ö and Ü groups.

[iɾʲi]	iri	'large'
[ɖɛɾʲɛ]	dere	'stream'
[tœɾʲɛn]	tören	'ceremony'
[tyɾʲym]	türüm	'creation'

2.5.4.2. Voiced, alveolar, rolled continuant [r] [2]

[r] occurs in intervocalic positions preceded and followed by vowels of the A, I, O and U groups.

[ɑrɤ]	arı	'bee'
[ɑrɑbɑ]	araba	'cart'
[kuɾuɫuk]	kırık	'broken'
[kuru]	kuru	'dry'
[koru]	koru	'small woods'

2.5.5. Flapped Continuants.

The flapped continuants are produced with the active articulator striking in passing against the passive one. The active and passive articulators are the tip of the tongue and

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[1] See Palat. II, p.189.

[2] See Palat. 12. p. 11.

the hard palate respectively. The flapped continuants can occur in all contexts except in syllable initial position preceded and followed by vowels[1] , and in absolute final position, in which case flapped continuants are devoiced and have some friction in their production, and may therefore be classed as fricatives[2] .

2.5.5.1. Voiced, palatalized, post-alveolar flap [ɾʲ]

[ɾʲ] occurs followed by vowels of the E, İ and Ü groups.

[ɾʲɛŋc]	renk	'colour'
[ɾʲiʂc]	risk	'danger'
[ɾʲyʃyeʈ]	rüşvet	'bribe'

2.5.5.2. Voiced, post-alveolar flap [ɾ]

[ɾ] occurs followed by vowels of the A, I, O and U groups.

[ɾaj]	ray	'rail'
[ɾɤxtɯm]	rıhtım	'pier'
[ɾomɐn]	roman	'novel'
[ɾux]	ruh	'spirit'

2.6. Consonant Chart

Consonants which have been analysed in the above sections are shown on a chart on p.49. Although a few of them are not relevant for Istanbul Turkish, all the places of articulation given on the IPA chart have been included here, thus making it possible to see at a glance those consonants that do and those that do not occur in this particular style. Palatalization is not included in the chart in order not to obscure the picture.

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1 See rolled continuants, 2.5.4.

2 See 2.5.1.7.

		Bilabial	Labio-dental	Dental and Alveolar	Retroflex	Palato-alveolar	Alveolo-palatal	Palatal	Velar	Uvular	Pharyngal	Glottal
Stop	Plosive	p b		t̪ d̪				c ɟ	k g			
	Affricate					tʃ dʒ						
Nasal		m		n				ɲ	ŋ			
Sibilant Continuant				s z		ʃ ʒ						
Non-Sibilant Continuant	Fricative	ɸ	f					ç	x			
	Frictionless Continuant	w	v					j				
	Lateral			l								
	Rolled			r								
	Flapped			ɾ								

Table I

2.7. Summary of the Relations between Vowels and Consonants

The phonetic descriptions given so far indicate underlying relationships between certain vowel and consonant groups. Going through these descriptions it becomes noticeable that vowels behave in similar ways in relation to palatal, palatalized, and non-palatal consonants in stop, nasal, sibilant and non-sibilant continuant groups. These relationships within cvc type monosyllabic words can now be summarized below under the heading of various vowel groups. The phonetic forms of the consonants are grouped together to enable easy reference to them when, in the following chapters, phonetic exponents are given for the terms of the consonantal subsystems in the phonology. This also matches with the grouping of vowels. The grouping is as follows:

[ʄ , p] – P group, [ɓ , b] – B group, [ƭ , t] – T group, [ɗ , d] – D group, [ɟ , g] – G group, [c , k] – K group, [ʧ] – Ç group, [ʤ] – C group, [m̓ , m] – M group, [ɳ , ɲ , n , ɲ , ŋ] – N group, [ʃ: , s] – S group, [ʃ] – Ş group, [ʒ , z] – Z group, [ʒ] – J group, [ɸ̓ , ɸ , f̓ , f] – F group, [ɰ , w , y , v] – V group, [ç , x] – H group, [j] – Y group, [l̓ , l , ɬ] – L group, [ɾ: , r , ɻ , ɹ] – R group.

I. A Group

i. Palatal + A + Palatal ⟶ [ʧ, ʤ, ʃ, j] + [a͡a] + [ʧ, ʤ, ʃ, j].

ii.a) Palatal (Ç, C, Ş, Y) + A + Non-palatal

⟶ [ʧ, ʤ, ʃ, j] + [a] + Non-palatal .

b) Non-palatal + A + Palatal (Ç , Ş , Y)

⟶ Non-palatal + [a] + [ʧ, ʃ, j].

iii. Non-palatal + A + Non-palatal (R) ⟶ Non-palatal + [a] + [ɹ] .

iv. Non-palatal + A + Non-palatal (P , T , K , N , M)

⟶ Non palatal + [ɐ] + [p, t, k, n, m]

v. Non-palatal + A + Non-palatal (S , Z, F, V)

⟶ Non-palatal + [ɐ̲] + [s, z, f, v] .

vi. Non-palatal + A + Non-palatal (L)

⟶ Non-palatal + [ɑ] + [ɬ] .

II. E Group

i. Palatal or palatalized + E + Palatalized (L)

⟶ Palatal or palatalized + [æ]+[l̠ʲ] .

ii. Palatal or palatalized + E + Palatalized (R)

⟶ Palatal or palatalized + [æ̝]+[ɹ̠ʲ] .

iii. Palatal or palatalized + E + Palatalized (M, N)

⟶ Palatal or palatalized + [ɛ̝] +[mʲ nʲ].

iv. a) Palatal or palatalized + E + Palatal (Ç, Ş, Y)

⟶ Palatal or palatalized + [ɛ] +[ʧ ʃ j].

b) Palatalized N, B + E + Palatalized (M, L)

⟶ [nʲ , bʲ] + [ɛ] + [mʲ , l̠ʲ] .

v. Palatal or palatalized + E + Palatalized (P, T, V, F, S, Z)

⟶ Palatal or palatalized +[e]+[pʲ ,tʲ,yʲ,fʲ,ʂʲ,zʲ] .

vi. Palatal or palatalized + E + Palatal (K)

⟶ Palatal or palatalized + [e̝] + [c] .

III. I, O, U Groups

i. Palatal or non-palatal + $\begin{matrix}\text{I}\\\text{O}\\\text{U}\end{matrix}$ + Palatal (Ç, Ş, Y, L)

$\longrightarrow$ Palatal or non-palatal + $\overset{\text{ɤ}}{\underset{\text{u}}{\text{ɔ}}}$ + [ʧ, ʃ, j, ɬ].

ii. Palatal or non-palatal + $\begin{matrix}\text{I}\\\text{O}\\\text{U}\end{matrix}$ + Non-palatal (P, T, K, M, N, R, H, ⋁, F)

$\longrightarrow$ Palatal or non-palatal + $\overset{\text{ɯ}}{\underset{\text{u}}{\text{o}}}$ + [p, t, k, m, n, ɹ, x, ɸ, v, w, f].

iii. Palatal or non-palatal + $\begin{matrix}\text{I}\\\text{O}\\\text{U}\end{matrix}$ + Non-palatal (S , Z)

$\longrightarrow$ Palatal or non-palatal + $\overset{\text{ɯ}}{\underset{\text{u}}{\text{o}}}$ + [s , z] .

IV. İ, Ö, Ü Groups

i. Palatal or palatalized + $\begin{matrix}\dot{\text{I}}\\\ddot{\text{O}}\\\ddot{\text{U}}\end{matrix}$ + Palatal or palatalized (Ç , Ş, Y, L)

$\longrightarrow$ Palatal or palatalized + $\overset{\text{i}}{\underset{\text{y}}{\text{œ}}}$ + [ʧ, ʃ, j , ɭ] .

ii. Palatal or palatalized + $\begin{matrix}\dot{\text{I}}\\\ddot{\text{O}}\\\ddot{\text{U}}\end{matrix}$ + Palatalized (P, T, M, F, R, V, N)

$\longrightarrow$ Palatal or palatalized + $\overset{\text{i}}{\underset{\text{y}}{\text{œ}}}$ + [ɸ, ʈ, ɲ, ɱ, f, ɻ, w, ɣ, ɸ].

iii. Palatal or palatalized + $\begin{matrix}\dot{\text{I}}\\\ddot{\text{O}}\\\ddot{\text{U}}\end{matrix}$ + Palatal or palatalized (S, Z, K)

$\longrightarrow$ Palatal or palatalized + $\overset{\text{i}}{\underset{\text{y}}{\text{ø}}}$ + [ʂ , ʐ, c] .

2.8. Intra-word Harmony

The phonetic descriptions and transcriptions of the examples in the preceding chapters have already indicated an interesting feature of Turkish, viz. harmony. This is not only confined to vowels but covers consonants as well.

With a few exceptions like,

[ɐnɲɛ]	anne	'mother'
[ɛlɲɐ]	elma	'apple'

there is harmony between syllables within native or assimilated Turkish words [1], and the whole utterance has frontness or backness throughout [2]. This becomes apparent when the occurrence of palatal and palatalized consonants in the vicinity of front vowels, and non-palatal consonants in the vicinity of back vowels is considered. Harmony of frontness/backness is accompanied by labial harmony, i.e. lip-rounding, if the first syllable has lip-rounding and the vowels of the subsequent syllables are close. Otherwise either the whole word is non-rounded, or when the following syllables have open vowels only the first syllable is rounded. An exception to this is when the first vowel is a vowel of the A group and is followed by one of the following labial consonants [b, p, m, w] as syllable initials.

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[1] See Chapter 3, pp. 55-61, for unassimilated loanwords.

[2] Except where 'yor' and 'ken' occur as suffixes for which see Chapter 6, pp. 125+124 respectively.

In such cases labiality of these sounds can effect the following vowel, e.g.

[sʊbun]	sabun	'soap'
[kʊput]	kaput	'army coat'
[xʊmuɹ]	hamur	'pastry'
[kʊwuɹ]	kavur	'fry'

CHAPTER THREE

Loanwords

3.1. Introduction

Loanwords in Istanbul Turkish may be grouped into two classes:

i. Assimilated

ii. Unassimilated

In the natural flow of the language some loanwords, by virtue of their constant usage and by their phonetic and phonological features, do not strike the native speaker as being different from words of native origin. Such loanwords are considered to be assimilated, and are treated on the same basis as native Turkish words though historically they are borrowings. Unassimilated loanwords on the other hand, have various characteristics which cause them to be regarded as different from native words[1].

3.2. Unassimilated Loanwords

The following sub-sections exemplify the basis on which loanwords are treated as unassimilated:

i. Words with an initial consonant cluster as in the examples below:

Monosyllabic

ccvc

[spo̯ɾ] spor 'sports'

---

[1] For the phonological structures of unassimilated loanwords see sections on unassimilated-loan noun and adjective roots, Chapter 4, pp. 83 - 90 and 102.

[kɹʲɛmʲ]	krem	'cream'
[gɹʲeʲ]	grev	'strike'
[tɹʲɛnʲ]	tren	'train'
[fɹʲɛnʲ]	fren	'brakes'
[plʲak]	plâk	'record'

Disyllabic

ccvc - cvc

[plʲastʲic]	plastik	'plastic'
[flʲastʲeɹʲ]	flaster	'plaster'
[trɐktʲœːɹʲ]	traktör	'tractor'

ccvc - cv

[plʲazmɐ]	plazma	'plasm'

ccv - cv

[tɹiko]	triko	'knitted fabric'

ccv cvc

[klʲasœːɹʲ]	klasör	'file'
[plʲaɲœːɹʲ]	planör	'glider'

No such initial clusters are possible in native Turkish words, and the words listed above have alternative pronunciations with a vowel separating the initial cluster, e.g.

[tʲiɾʲɛnʲ]	tren	'train'
[sʲipoːɹ]	spor	'sports'
[kɤlʲasœːɹʲ]	klasör	'file'

ii. Words with a final[1] voiced stop. There are some exceptions,

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[1] 'Final' refers both to syllable and to word final .

i.e. some words in constant use where the voiced bilabial plosive in syllable final position is followed by a voiced sibilant, or a lateral, or a flapped continuant, i.e. — [b] + [z, l, ɾ] —

— [b̥] + [z̥, l̥, ɾ̥]—

are not treated as loans because of their frequent useage, e.g.

[sɛbzɛ]	sebze	'vegetable'
[cibɾit]	kibrit	'match'
[abla]	abla	'sister'

Examples of unassimilated loanwords with a syllable final stop are as follows:

[bagle]	bagle	'she mule'
[mybɾɛm]	mübrem	'urgent'
[mydɾic]	müdrik	'perceiving'

iii. Words with an initial or final voiced palato-alveolar sibilant, i.e. [ʒ][1]. This sound does not occur in native Turkish words in the style of speech described here. Loanwords having this sound are few in number, and most of them are infrequently used in everyday language.

[ʒilet]	jilet	'razorblade'
[ʒiclet]	jiklet	'chewing gum'
[ʒølɛ]	jöle	'jelly'
[garaʒ]	garaj	'garage'
[aʒan]	ajan	'agent'

---

[1] See 2.4.6.

[ɛʒdʝæɟ]	ejder	'monster'
[sɛʒdɛ]	secde	'act of prostrating oneself in worship'

The very alien nature of this sound is more apparent when the wide-spread use of [dʒ] instead of [ʒ] in word- initial position is considered, as in:

[dʒiʝeɟ]	for	[ʒiʝeɟ]
[dʒicʝeɟ]	for	[ʒicʝeɟ]

iv. Words with initial voiced or voiceless palatal plosive, i.e. [ɟ] and [c] followed by [a] or [a:] .

[ɟyʒɟaɟ]	rüzgâr	'wind'
[caɟiɟ]	kârgir	'wooden'
[caɟ]	kâr	'profit'
[ca:ʃiɟ]	kâşif	'explorer'

Such words are few in number, and in the orthography the palatalizing of the initial consonant is indicated by the circumflex accent placed on the following vowel as in the examples given above[1].

v. A limited number of words in which the voiced palatalized lateral, i.e. [ʝ], is: a) preceded or followed by [ʔ].
b) preceded or followed by [a] .

Examples:

a)	[ɾoʝ]	rol	'role'
	[goʝ]	gol	'goal'
	[boʝ]	bol	'fruit punch'
	[hoʝ]	hol	'entrance hall'
	[ʝoʤa]	loca	'box (in theatre, etc.)'
b)	[ʝaf]	lâf	'speech'

---

1 The circumflex accent is also used to mark a long vowel in loanwords of Arabic or Persian origin, though there is a tendency to use it less and less. See G.L.Lewis, 'Turkish Grammar', p.2, para. 3.

[l̪ˌacin̪] lâkin 'but'

vi. Words with a vowel of the O group in a syllable other than the first[1], e.g.

[kɔnsolos]	konsolos	'consul'
[ɐzɔt]	azot	'nitrogen'
[cilɔ]	kilo	'kilogramme'
[kɔrɔ]	koro	'chorus'
[ʃarɐmpɔɬ]	ş̪arampol	'ditch'
[gɔndɔɬ]	gondol	'gondola'

vii. Words with long vowels except :

a) when the word can have an alternative pronunciation with the long vowel being replaced by vowel + voiced palatal frictionless continuant, e.g. [tyː] or [tyj] for tüy 'feather' .

b) where in the orthography the long vowel is represented as ' vowel + ğ , e.g. [dɑː] has the orthographic form 'dağ' .

Examples of unassimilated words with long vowels are as follows :

[mɑːruf]	mâruf[2]	' well known '
[xɐtɑː]	hata	'mistake'
[gɤdɑː]	gıda	'food'
[ʈɛːʂiɟ]	tesir	'influence'
[fɛʤiː]	feci	'horrible'

---

[1] This does not apply to suffixed forms, onomatopoeic words and compound words.

[2] See p.58 , footnote 1.

viii. Non-harmonic words : Words which do not have harmony between syllables are mostly considered unassimilated loanwords, apart from the exceptions given in 2.8.

Examples of non-harmonic loanwords are as follows :

[kɐlɟɛm]	kalem	'pencil'
[tɐkyim]	takvim	'calendar'
[cirɐz]	kiraz	'cherry'
[ɟynɐx]	günah	'sin'
[fɔbi]	fobi	'phobia'

ix. Apart from the above mentioned characteristics, some words are considered unassimilated loanwords by intuition. Such words are few in number, and usually represent things for which there are already widely used native or assimilated loanwords in colloquial speech. For example :

Unassimilated loanwords

1.	[mœbl̩ɛ]	möble	'furniture'
2.	[byfɛ]	büfe	'chest of drawers'
3.	[a̟l̟jans]	alyans	'wedding ring'

their synonyms

1.	[tɐkum]	takım	'furniture'
2.	[dɔlɐp]	dolap	'chest of drawers'
3.	[xɑɬkɐ]	halka	'wedding ring'

It can now be stated that a word which has any of the features given above is classed as an unassimilated loanword. Some words exhibit more than one of these features, and as in such cases they retain a greater part of the phonetic features of the word in the language from which they have been borrowed, their

non-native origin is all the more apparent. For example, the word

[bijɔlɔʒi] biyoloji 'biology'

is an unassimilated loanword, because :

a) it is non-harmonic

b) vowels of the O group occur in non-initial syllables

c) the word has the consonant [ʒ] in it ,

and

[çidʀɑt] hidrat 'hydrate'

is an unassimilated word, because :

a) [dʒ] occurs in syllable final position

b) the word is non-harmonic .

PART II – PHONOLOGY

CHAPTER FOUR

Root Structures

4.1. Introduction

In this chapter root structures of nouns, adjectives and verbs are analysed[1]. The reason why the analysis is confined mainly to these classes is that the greater part of the Turkish vocabulary appears to fall into them, and also, because of the greatly varied structure of words of these classes, whatever is said of their phonetic and phonological features, in most cases holds true for the rest. Explanations are given for notable exceptions in the course of description within the appropriate sections.

As mentioned above, it is the root forms which are taken up in this chapter, the root being that part of a word structure which is left when all the affixes have been removed[2]. Roots are mainly monosyllabic and disyllabic.

4.1.1. Prosodies of the Root

The following prosodies are set up for the structure of the noun, adjective and verb roots.

y prosody: phonetic exponent is frontness

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[1] The grammatical classifications referred to throughout this thesis are based in the main on G.L.Lewis' 'Turkish Grammar', 1967. However, Lewis does not make a distinction between the terms root and stem. He uses the term stem for what is taken as the root in this thesis for the purposes of the analysis. See footnote 2 below.

[2] See R.H.Robins, 'General Linguistics: An Introductory Survey', pp. 206–213, where the definition that is given is applicable to Turkish.

w prosody: phonetic exponent is backness

r prosody: phonetic exponent is rounding

r̲ prosody: phonetic exponent is non-rounding

h prosody: phonetic exponent is voiceless onset and/or ending.

h̲ prosody: phonetic exponent is voiced onset and/or ending, except in case of -P systems when exponent is voicelessness.

These are described in relation to syllabic structure which is described in terms of C and V systems. With the exception of some unassimilated loan roots, y/w prosodies operate throughout the whole root, e.g.

^{y}CVC [ɟæl̠] gel 'come'

^{w}CVC [tu̯z] tuz 'salt'

^{y}CV–CVC [ɟɛn̠iʃ] geniş 'wide'

^{w}CV–CVC [kʉdu̯n] kadın 'woman'

Unassimilated-loan roots of various structures can be y prosodic onset/w prosodic ending, or w prosodic onset/y prosodic ending[1], e.g.

^{y}CVC–^{w}CV–V [mɛʤmua] mecmua 'magazine'

^{w}CVC^{y} [go̯l̠] gol 'goal' [2]

h/h̲ prosodies are not necessarily the same at syllable onset and syllable ending, i.e.for example, a verb root of CVC structure can be:

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[1] See N.Waterson, 'Some Aspects of the Phonology of the Nominal Forms of the Turkish Word', BSOAS, 18, 1956, pp.580–581.

[2] In polysyllabic examples change in prosody is shown at the onset of the following syllable, but in monosyllabic examples, at the end of the syllable.

^{h}CVC^{h} [ʃɛʧ] seç 'choose'

^{h}CVC$^{\underline{h}}$ [kɑɬ] kal 'stay'

$^{\underline{h}}$CVC$^{\underline{h}}$ [vuɹ] vur 'strike'

$^{\underline{h}}$CVC^{h} [ɟɛʧ] geç 'pass'

r/$\underline{r}$ prosodies operate, in the main, throughout the whole root, e.g.

^{r}CVC [d̥yz̥] düz 'straight'

$^{\underline{r}}$CVC [d̥ic] dik 'steep'

^{r}CV–CVC [ʧɔʤuk] çocuk 'child'

$^{\underline{r}}$CV–CVC [ʈɛm̥æl̥] temel 'foundation'

There are however polysyllabic structures which can be r beginning and $\underline{r}$ ending, e.g.

^{r}CV–$^{\underline{r}}$CVC [ɟø̞ɾ̥ey] görev 'duty'

or $\underline{r}$ beginning and r ending,[1] e.g.

$^{\underline{r}}$CV–^{r}CVC [kɐvuɹ] kavur 'fry'

The relations of y/w, r/$\underline{r}$ prosodies to vowel grades are dealt with in 4.1.2.1.

4.1.2. V Systems

A two term V system is set up for the vocalic element of structure in relation to the vowel grade for all roots.

α : phonetic exponent openness[2]

ɪ : phonetic exponent closeness[3]

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[1] See 4.1.2.1.

[2] See vowels of A,E, O, Ö groups, Chapter 1.

[3] See vowels of I, İ, U,Ü groups, Chapter 1.

Both grades of openness can be found in monosyllabic roots, e.g.

αC	al	'take'
ɪC	it	'push'

In polysyllabic roots, grades of openness of the V systems can be the same in both syllables or there may be a contrast.

Same Grade V

Disyllabic:	Cα–Cα	kaya	'rock'
	Cɪ–Cɪ	tipi	'blizzard'
Trisyllabic:	Cα–Cα–Cα	kösele	'leather'
	ɪC–CɪC–Cɪ	uskumru	'mackarel'

Contrasting Grade V

Disyllabic:	Cα – Cɪ	koru	'protect'
	Cɪ – Cα	şişe	'bottle'
Trisyllabic:	Cα – Cɪ – Cα	kelime	'word'
	ɪC – CαC – Cα	iskemle	'chair'

4.1.2.1. Prosodies of the Root in relation to V Systems

y/w and r prosodies operate with α and ɪ in all syllables of the root. r prosody operates with ɪ in all syllables of the root, but with α only in the first syllable[1]. Polysyllabic roots are thus y or w prosodic regardless of V systems, e.g.

^{y}Cα – Cɪ	keçi	'goat'
^{y}ɪ – CαC	inek	'cow'
^{w}Cα – Cɪ	katı	'hard'
yɪ – CɪC	ilik	'marrow'

---

[1] Cf. Unassimilated-loan noun roots, p.85, and onomatopoeia p.150, footnote 1.

Roots are also r prosodic regardless of V system, e.g.

$\underline{r}_{C\alpha-C\alpha C}$ saman 'hay'

$\underline{r}_{C\imath-C\imath C}$ fitil 'wick'

$\underline{r}_{C\alpha-C\imath C}$ takım 'team'

$\underline{r}_{C\imath-C\alpha C}$ kireç 'lime'

But they are r prosodic only with ı V systems, i.e. $\imath-\imath(-\imath)$ e.g.

$r_{C\imath-C\imath}$ kuru 'dry'

$r_{\imath C-C\imath C-C\imath}$ uskumru 'mackarel'

or $\alpha-\imath(-\imath)$, e.g.

$r_{C\alpha-C\imath}$ koru 'protect'

$r_{C\alpha-C\imath C-C\imath C}$ tomurcuk 'bud'

If the first syllable is r prosodic with α or ı, and the following syllable has α, then the syllable with α is r prosodic, e.g.

$r_{C\alpha-\underline{r}_{C\alpha C}}$ köpek 'dog'

$r_{C\imath-\underline{r}_{C\alpha C}}$ güneş 'sun'

It is also possible to have an r prosodic syllable with ı following a r prosodic syllable with α when the syllable with ı has a bilabial exponent for the initial C system[1], e.g.

$\underline{r}_{C\alpha-r_{C\imath C}}$ kabuk 'shell'

$\underline{r}_{C\alpha-r_{C\imath C}}$ havuz 'pool'

r/r prosodic roots can be y or w prosodic, i.e. r/r prosodies of the root do not impose any restrictions on the y/w prosodic character of the root.

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[1] See N. Waterson, op. cit., p. 580 .

$\overset{r}{y}C\alpha - C\imath C$	geniş	'wide'
$\overset{r}{y}C - C\imath C$	yüzük	'ring'
$\overset{r}{w}C\alpha - C\imath C$	kaşık	'spoon'
$\overset{r}{w}C\imath - C\imath C$	sucuk	'sucuk'

For a different prosodic relation of syllables see unassimilated-loan roots, pp. 84-85.

Prosodies and V systems to cover noun, adjective and verb roots have been described in the sections above, and only C systems have now to be shown. These are dealt with separately under the headings of noun roots, adjective roots and verb roots.

As the structures possible for all the roots would be too numerous to analyse here, only a sample of structures into which the majority of each class of roots fall are given.

4.2. The Noun

In this analysis noun roots are considered in two groups:

i. native and assimilated-loan noun roots

ii. unassimilated-loan noun roots

4.2.1. Native and Assimilated-Loan Noun Roots

4.2.1.1. Syllabic Structure

Native and assimilated-loan noun roots can be monosyllabic, disyllabic or trisyllabic. Nouns of monosyllabic root structure are limited in number compared to disyllabic and trisyllabic nouns. The possible structures for these are as follows[1]:

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[1] One example is given for each type of structure.

VC	el	'hand'
CVC	kaş	'eye brow'
VCC	üst	'top'
CVCC	zevk	'pleasure'

The commonest of these four structures is CVC.

In disyllabic noun roots the most frequent sequences of syllables are as follows:

V – CVC	oluk	'drain pipe'
VC – CVC	erkek	'male'
VC – CV	abla	'sister'
CV – CV	baba	'father'
CVC – CV	tarla	'farming land'
CV – CVC	çocuk	'child'
CVC – CVC	hendek	'ditch'

In trisyllabic noun roots the more common syllable sequences are as follows:

CV – CV – CV	kelime	'word'
CV – CV – CVC	bilezik	'bracelet'
CV – CVC – CVC	mühendis	'engineer'
CVC – CV – CVC	memleket	'country'
VC – CV – CV	is_kele	'pier'
VC – CVC – CV	iskemle	'chair'

The above structures show that noun roots can be C or V final, and C or V initial. The root final is of extreme significance when suffixed forms are considered. The juncture of root + suffix exhibits similar sets of features with V final roots, and other sets with C final roots. To simplify the

presentation of analysis and to avoid repetition two noun root structures, one monosyllabic and the other disyllabic, viz. CVC and CV–CVC, are described; although CVCC noun roots are limited in number, this structure is also included in the description to show the restriction of the subsystems that can be set up for the C systems in the final cluster.

Systems are set up here only for the root initials and root finals as statements have to be made in relation to these systems when intra-word and inter-word junctures are analysed[1]. There is no apparent restriction on what C finals are possible with particular C initials, so consonant combinations are not described.

4.2.1.2. C Systems

4.2.1.2.1. CVC Structure

The following subsystems can be set up for the initial C system in CVC structure.

i. P subsystem: There are four terms in this subsystem, P_4, the terms being p, t, k, ç. The phonetic exponents, which are all stops, are consonants of P, T, K and Ç groups[2] in h prosodic onsets, and consonants of B, D, G and C groups in h prosodic onsets[3].

Examples:

$^{h}_{p}P\text{VC}$ pay 'share'

$^{h}_{p}P\text{VC}$ bez 'cloth'

---

[1] See Chapters 6 and 8.

[2] For grouping of consonants see 2.7.

[3] Onset refers to root onset which coincides with syllable onset.

$^{h}_{PVC_t}$ toz 'dust'

$^{\underline{h}}_{PVC_t}$ dal 'branch'

$^{h}_{PVC_k}$ kir 'dirt'

$^{\underline{h}}_{PVC_k}$ gül 'rose'

$^{h}_{PVC_ç}$ çöl 'desert'

$^{\underline{h}}_{PVC_ç}$ can 'life' [1]

ii. S subsystem: There are two terms in this subsystem, S_2, the terms being ş and s. There is no contrast of h/h̲ prosodies when the term is ş, which operates in h prosodic onsets only. The term s can operate in h/h̲ prosodic onsets . In h prosodic onsets the exponents,which are sibilants, are consonants of the Ş and S groups, and in h̲ prosodic onsets they are the consonants of the Z group. Examples:

$^{h}_{SVC_ş}$ şiş 'skewer'

$^{h}_{SVC_s}$ söz 'speech'

$^{\underline{h}}_{SVC_s}$ zil 'bell'

iii. N subsystem: There are two terms in this subsystem, N_2, the terms being m and n. There is no contrast of h/h̲ prosodies, the terms operate in h̲ prosodic onsets only. The exponents, which are nasals, are consonants of the M and N groups.

---

[1] Only h/h̲ prosodies are marked in the examples to show the terms operating in different types of onsets and endings. y/w, r/r̲ are not shown as there are no restrictions on their occurrences.

Examples:

$\underline{h}_{NVC}$ mal 'property'

$\underline{h}_{NVC}$ nem 'humidity'

iv. K subsystem : There are five terms in this subsystem, K_5 , the terms being f, h, l, r, y. The term f operates in h/$\underline{h}$ prosodic onsets, the exponents in h onsets are consonants of the F group, and in $\underline{h}$ onsets consonants of the V group. The term h operates in h prosodic onsets only, and the exponents are consonants of the H group. l,r, y operate in $\underline{h}$ prosodic onsets, and their exponents are consonants of the L, R, Y groups. All the exponents of the K subsys tem are continuants.

Examples:

$\underline{h}_{KVC}$ fil 'elephant'

$\underline{h}_{KVC}$ vat 'voltage'

h_{KVC} han 'inn'

$\underline{h}_{KVC}$ leş 'carcass'

$\underline{h}_{KVC}$ ray 'rail'

$\underline{h}_{KVC}$ yüz 'face'

The initial C in y/w, r/$\underline{r}$ prosodic CVC noun root structure can now be represented as follows:

$h/\underline{h}_{C_{P_4}VC}$

$h/\underline{h}_{C_{S_2}VC}$

$$\underline{h}C_{N_2}VC$$

$$h/\underline{h}C_{K_5}VC \quad [1]$$

The following subsystems are set up for the final C of the CVC structure.

i. P subsystem: There are four terms in this subsystem, P_4, the terms being p, t, k, ç which operate in h/h prosodic endings[2]. In syllables with h prosodic endings the exponents are consonants of the P, T, K, Ç groups. In syllables with h prosodic endings exponents are consonants of the P, T̈, K, Ç groups when a consonant or nothing follows, but consonants of B, D,G and C groups or a palatal glide in a y prosodic root, and a velar glide in a w prosodic root when a vowel follows[3].

Examples:

CVP_p^h	sap	'stem'
$CVP_p^{\underline{h}}$	dip	'bottom'
CVP_t^h	süt	'milk'
$CVP_t^{\underline{h}}$	tat	'taste'
CVP_k^h	kök	'root'
$CVP_k^{\underline{h}}$	gök	'sky'
$CVP_ç^h$	saç	'hair'
$CVP_ç^{\underline{h}}$	taç	'crown' [4]

---

[1] h/h does not necessarily imply that each of the terms can operate in h and h onsets (or endings, as the case may be), it is a generalized statement for terms in a specific subsystem.

[2] Ending refers to root ending which coincides with syllable ending.

[3] See N. Waterson, op. cit., p.583, footnote 1.

[4] For instrumental evidence that there is no difference in the P in absolute final position in h/h endings see Specs.8 and 10, pp.194 and 195.

ii. S subsystem: There are two terms in this subsystem, S_2 , the terms being ş and s . There is no contrast of h/h̲ prosodies when the term is ş, which operates only in h prosodic endings. The exponents are consonants of Ş group. The term s operates in h/h̲ prosodic endings; in h endings the exponents are consonants of the S group , and in h̲ endings the exponents are consonants of the Z group.

Examples:

$CVS^{h}_{ş}$	kaş	'eye-brow'
CVS^{h}_{s}	tas	'dish'
$CVS^{h̲}_{s}$	saz	'string instrumemt'

iii. N subsystem: There are two terms in this subsystem, N_2 , the terms being m and n . There is no contrast of h/h̲ prosodies, the terms operate in h̲ prosodic endings only. The exponents are consonants of the M and N groups[1].

Examples:

$CVK^{h̲}_{m}$	dam	'roof'
$CVK^{h̲}_{n}$	kan	'blood'

iv. K subsystem: There are six terms in this subsystem, K_6 , the terms being f,h,l, r, y and ğ. There is no contrast of h/h̲ prosodies when the terms are l, r, y, ğ which operate in h̲ prosodic endings only; the exponents for l, r, y are consonants of the L, R, Y groups[2], and for ğ vowel length when a consonant or

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[1] There is a certain degree of devoicing in the consonants of M, N groups when they are exponents of the final N subsystems. They are analysed as functioning in h̲ prosodic syllable ending because of the way they link with suffixes. See Spec. 4,p192.

[2] See footnote 1 above which also applies to consonants of the L,R,Y groups when they are exponents of the final K subsystem for which see Specs. 5,6,7, pp. 193 and 194.

nothing follows or a velar/palatal glide when a vowel follows[1]. The term h operates in h endings only and the exponents are consonants of the H group. The term f can operate in h/h endings, the exponents in h endings are consonants of the F group, and in h endings consonants of the V group. The word su is treated as having CVC structure with K for final C, i.e. CVK_{y}^{h} , because of the way it links with suffixes, the term y has no exponents in absolute final and pre consonantal position, and the exponent [j] in pre vocalic position.[2]

Examples:

CVK_{l}^{h}	pul	'stamp'
CVK_{r}^{h}	kir	'dirt'
CVK_{y}^{h}	yay	'bow'
CVK_{g}^{h}	bağ	'vineyard'
CVK_{f}^{h}	dev	'monster'
CVK_{f}^{h}	küf	'mould'
CVK_{h}^{h}	mıh	'nail'

The final C in y/w, r/r prosodic CVC noun root structure can now be represented as follows:

$CVC_{P_4}^{h/h}$

$CVC_{S_2}^{h/h}$

$CVC_{N_2}^{h/h}$

$CVC_{K_6}^{h/h}$ [3]

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[1] See N.Waterson, op. cit., p.582, footnote 4.

[2] ibid. p.585, footnote 1.

[3] See p. 73 , footnote 1 .

A comparison of initial and final subsystems shows that they have the same number of terms which are phonetically similar in P, S and N subsystems and which function similarly in h/$\underline{h}$ onsets and endings. The number of terms in K subsystem is five for initial, and six for final K. Initial and final K subsystems have 5 terms, l, r, y, f,h with similar exponents, and final K subsystem has ğ as the sixth term.

4.2.1.2.2. CV – CVC Structure

The subsystems which have been set up for the initial C of the CVC structure are applicable to the initial C of the CV – CVC structure, and therefore, to avoid repetition, only subsystems for the final C of CV – CVC structure which differ from those of final C of CVC structure are given below:

i. P subsystem: There are four terms in this subsystem, P_4; of the four terms, p, k, ç operate in $\underline{h}$ prosodic endings only, and the exponents are consonants of P, K, Ç groups when a consonant or nothing follows, but when a vowel follows, the exponents are consonants of the B, C groups for p, ç, and a palatal glide in y prosodic words, and a velar glide in w prosodic words for k. The term t operates in h/$\underline{h}$ endings, the exponents are consonants of the T group in h prosodic endings and also in h endings when a consonant or nothing follows, and consonants of the D group in $\underline{h}$ endings when a vowel follows.

Examples:

CV – CVP$^{h}_{p}$	şarap	'wine'
CV – CVP$^{h}_{t}$	sepet	'basket'
CV – CVP$^{h}_{t}$	geçit	'passway'

$CV-CVP_{k}^{h}$	kepek	'dandruff'
$CV-CVP_{ç}^{h}$	piliç	'chicken'

ii. S subsystem: There are two terms in this subsystem, S_2, the terms being ş and s. There is no contrast of h/h̲ prosodies when the term is ş which operates only in h prosodic endings. The exponents are consonants of the Ş group. The term s operates in h/h̲ prosodic endings. The exponents in h endings are consonants of the S group, and in h̲ endings consonants of the Z group.

Examples:

$CV-CVS_{ş}^{h}$	barış	'peace'
$CV-CVS_{s}^{h}$	seyis	'groom'
$CV-CVS_{s}^{h}$	topuz	'knob'

iii. N subsystem: There are two terms in this subsystem, N_2, the terms being m and n which operate only in h̲ prosodic endings. The exponents are consonants of the M and N groups.

Examples:

$CV-CVN_{m}^{h}$	resim	'picture'
$CV-CVN_{n}^{h}$	keten	'linen'

iv. K subsystem: There are four terms in this subsystem, K_4, the terms being f, l, r, y . There is no contrast of h/h̲ prosodies when the terms are l, r, y which operate in h̲ prosodic endings only. The exponents are consonants of the L, R, Y groups. The term f can occur in h/h̲ prosodic endings. The exponents in h prosodic endings are consonants of the F group, and in h̲ endings consonants of the V group.[1]

[1] The term f occurs in only a few h prosodic ending words, mostly neologisms such as görev 'duty'.

Examples:

$CV-CVK_f^h$	hedef	'aim'
$CV-CVK_{\ddot{g}}^h$	görev	'duty'
$CV-CVK_l^h$	temel	'foundation'
$CV-CVK_r^h$	kömür	'coal'
$CV-CVK_y^h$	saray	'palace'

The final C in y/w, r/r prosodic CV−CVC noun root structure can now be represented as follows:

$$CV-CVC_{P_4}^{h/h}$$

$$CV-CVC_{S_2}^{h/h}$$

$$CV-CVC_{N_2}^{h}$$

$$CV-CVC_{K_4}^{h/h}$$

A comparison of final subsystems in CVC and CV−CVC shows that S and N subsystems have the same number of terms which are phonetically similar and function in similar types of ending. K subsystem for final C in CVC has six terms compared to four of the K subsystem for final C in CV−CVC. Apart from this, the terms function in similar type of endings and have similar exponents in both structures. The main difference is in P subsystems: although the number of terms are the same and the terms similar, in CVC structure they operate in h/h prosodic endings, whereas in CV−CVC structure p,k,ç operate in h prosodic endings only, and t operates in h/h endings.

4.2.1.2.3.CVCC Structure

The following subsystems are set up for the initial C system in CVCC structure.

i. P subsystem: There are four terms in this subsystem, P_4, the terms being p, t, k, ç which operate in h/h̲ prosodic onsets. The exponents are consonants of the P, T, K, Ç groups in h prosodic onsets, and consonants of the B, D, G, C groups in h̲ prosodic onsets.

Examples:

$^{h}_{p}P\alpha CC$	post	'animal skin'
$^{\underline{h}}_{p}P\alpha CC$	borç	'debt'
$^{h}_{t}P\iota CC$	turp	'radish'
$^{\underline{h}}_{t}P\alpha CC$	dert	'sorrow'
$^{h}_{k}P\iota CC$	kurt	'wolf'
$^{\underline{h}}_{k}P\alpha CC$	genç	'youth'
$^{h}_{ç}P\alpha CC$	çark	'wheel'
$^{\underline{h}}_{ç}P\iota CC$	cilt	'complexion'

ii. S subsystem: There are two terms in this subsystem, S_2, the terms being ş and s. ş operates in h prosodic onsets only, and the exponents are consonants of the Ş group. s operates in h/h̲ prosodic onsets; the exponents in h onsets are consonants of the S group, and in h̲ onsets, consonants of the Z group.

Examples:

$h_{\underset{\S}{S}\alpha CC}$	şart	'condition'
$h_{\underline{S}_1 CC}$	sirk	'circus'
$h_{\underline{S}\alpha CC}$	zamk	'glue'

iii. N subsystem: This has one term, m, which operates in h prosodic onset, and the exponent is a consonant of the M group.

Example:

$h_{\underline{N}_1 CC}$	mülk	'property'

iv. K subsystem: There are four terms in this subsysytem, K_4, the terms being f, h, r, y. f and h operate in h prosodic onsets, and the exponents are consonants of the F and H groups. r and y operate in h prosodic onsets, and the exponents are consonants of the R and Y groups.

Examples:

$h_{\underset{f}{K}\alpha CC}$	fark	'difference'
$h_{\underset{h}{K}_1 \alpha CC}$	halk	'people'
$h_{\underset{r}{K}\alpha CC}$	renk	'colour'
$h_{\underset{y}{K}_1 CC}$	yurt	'country'

The initial C system in CVCC noun root can now be represented as follows:

$$h/h_{\underline{C}_{P_4} VCC}$$

$$h/h_{\underline{C}_{S_2} VCC}$$

$\underline{h}C_{N_1}VCC$

$h/\underline{h}C_{K_4}VCC$

In CVCC the ending can be h/h prosodic. Three subsystems are set up for the first C of the final cluster, and these are as follows:

i. S subsystem: There are two terms in this subsystem, ş and s, and the exponents are consonants of the S and Ş groups.

ii. N subsystem: There are two terms in this subsystem, m and n, the exponents being consonants of the M and N groups.

iii. K subsystem: There are four terms in this subsystem, K_4, which are f, h, l, r, the exponents being the consonants of the F, H, L and R groups. For examples showing these subsystems see below.

Two subsystems, P and S, are set up for the final C system.

i. P subsystem has four terms, p, t, k, ç. The term p operates in h prosodic endings only, and the exponents are consonants of the P group. ç operates in h prosodic endings only, and the exponents are consonants of the Ç group when a consonant or nothing follows, and consonants of the C group when a vowel follows. The terms t and k operate in h/h endings; in h prosodic endings the exponents are consonants of the T and K groups, and in h prosodic endings, consonants of the T and K groups when a consonant or nothing follows, and consonants of the D and G groups when a vowel follows.

Examples:

$CVK_{lp}P^{h}$	kulp	'handle'
$CVK_{lt}P^{h}$	zift	'tar'

$CVSP^{h}_{sk}$	köşk	'mansion'
$CVKP^{h}_{rt}$	dert	'sorrow'
$CVSP^{h}_{st}$	post	'animal skin'
$CVKP^{h}_{rç}$	burç	'sign of the zodiac'
$CVNP^{h}_{nk}$	denk	'bundle'
$CVNP^{h}_{mk}$	zamk	'glue'

ii. S subsystem: This has one term, s, which operates in h prosodic endings, and the exponents are consonants of the S group.

Examples:

$CVKS^{h}_{rs}$	ders	'lesson'
$CVNS^{h}_{ns}$	şans	'luck'

The possible combinations of − CC can be summarized thus:

a) − SP when the terms are : $-\ S_s\ P_{t,k}$

$-\ S_s\ P_k$

b) − NP when the terms are : $-\ N_m\ P_k$

$-\ N_n\ P_{k,ç}$

c) − KP when the terms are : $-\ K_r\ P_{t,k}$

$-\ K_l\ P_{t,k,p}$

$-\ K_r\ P_{p,t,k,ç}$

d) − NS when the terms are : $-\ N_n\ S_s$

e) − KS when the terms are : $-\ K_r\ S_s$

Nouns which have been treated as having the structure CVC∘C are not analysed separately here[1], as the tendency in colloquial speech now is to fit them into the pattern of CVCVC structure which is already described above, 4.2.1.2.

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[1] See N.Waterson, op.cit., p. 586 .

4.2.2. Unassimilated-loan Noun Roots

4.2.2.1. Syllabic Structure

Unassimilated-loan noun roots can be considered in two groups.

i. Those which are considered unassimilated by virtue of their phonetic form, i.e. they have the same syllabic structures as the native and assimilated-loan nouns, but have some phonetic features which require them to be classed as unassimilated.

ii. Those which have syllabic structures of a type not found in native and assimilated roots.

Phonetic features which cause words exhibiting them to be regarded as unassimilated have already been discussed in Chapter 3, where various unassimilated-loan noun roots of the first group are given as examples, so no further discussion is needed. It is, therefore, roots of the second group which are analysed here. Examples of such syllabic structures are as follows (one example is given for each):

CCVC	tren	'train'
CV – VC	saat	'hour'
CV – V – CVC	saadet	'happiness'
CV – CV – VC	ziraat	'agriculture'
VC – CVCC	artist	'film star'
VCC – CCVC	ekspres	'express'
CV – CV – CV – VC	müracaat	'application'
CV – CV – CV – CV	münakaşa	'argument'
CVC – CV – V	mecmua	'magazine'
VC – CV – V	iddia	'claim'

It is especially interesting to note the possibility of V – V syllable division, i.e. a sequence of V final and V initial syllables which is not possible in native or assimilated-loan noun roots.

4.2.2.2. Prosodies

In addition to y/w, r/r and h/h prosidies which have already been described, a prosody of length, symbolized by L, is set up for certain unassimilated-loan noun roots. The exponent of L prosody is vowel length, i.e. a long vowel, e.g.

$^{L}C\alpha - {}^{L}C\alpha$ [dα:vα:] dâvâ 'lawsuit'

and the juncture of syllables marked with L prosody and suffixes are as for – V final syllables, e.g.

$^{L}C\alpha - {}^{L}C\alpha$ + CV [dα:vα:sɯ] davası 'his law suit'[1]

4.2.2.2.1 Prosodies of the Unassimilated-loan Root in Relation to V Systems

y/w prosidies do not necessarily operate throughout the whole root in unassimilated loans, they can be y prosodic onset w prosodic ending and vice versa[2], e.g.

$\underset{y}{\underline{r}}CV - {}^{w}CV - VC$	ziraat	'agriculture'
$\underset{w}{\underline{r}}VC - {}^{y}CVCC$	artist	'film star'
$\underset{w}{\underline{r}}CVC^{y}$	gol	'goal'
$\underset{y}{\underline{r}}CVC^{w}$	lâf	'speech'

[1] Cf. native and assimilated-loan noun roots which, at the phonetic level, end in a long vowel, but in phonology are treated as being C final because of the type of junction they have with suffixes, see pp. 74-75 , K subsystem.

[2] Cf. native and assimilated-loan noun roots, p. 64.

r prosody does not always operate with ɪ in all syllables of the root, e.g.

$^{r}C\imath - {}^{r}C\imath C$	mümin	'one who believes'
$^{r}C\imath - {}^{r}C\imath C$	sinüs	'sinus'

and with α, it can operate in any of the syllables, not just the first syllable, e.g.

$^{r}C\imath - {}^{r}C\alpha$	kilo	'kilogrammme'
$^{r}C\alpha C - C\alpha C$	konsol	'chest of drawers'
$^{r}C\imath - C\alpha C - {}^{r}C\alpha$	bilardo	'billiards'

4.2.2.3. C Systems

A striking feature of C systems in unassimilated-loan roots is the possibility of the term ş of subsystem S functioning in h prosodic onsets/endings, e.g. $^{wh}_{ş}SVC - {}^{y}CV$ jarse 'jersey', and also the possibility of $P_{t,ç,k}$ functioning in h prosodic endings, e.g. $VP^{h}_{t} - {}^{h}P_{t}V - V$ iddia 'claim'.

The CCVC structure is the most alien to the native structure, and it is therefore analysed below showing what systems can operate in an initial cluster and what possible final systems are. The C systems in other structures are mostly the same as those given for native and assimilated-loan noun roots, with the exception of features mentioned above, and are therefore not described.

4.2.2.3.1. CCVC Structures

The following subsystems are set up for the initial C in CCVC structure:

i. P subsystem: There are three terms in this subsystem, P_3, the terms being p, t, k which operate in h/h prosodic onsets. The

exponents are consonants of the P, T, K groups when the onset is h prosodic, and B, D, G groups when the onset is h prosodic.

Examples:

$h_{P_p CVC}$	priz	'socket'
$\underline{h}_{P_p CVC}$	blok	'block'
$h_{P_t CVC}$	tren	'train'
$\underline{h}_{P_t CVC}$	dram	'drama'
$h_{P_k CVC}$	kral	'king'
$\underline{h}_{P_k CVC}$	grev	'strike'

ii. S subsystem: There is one term in this subsystem, S_1, the term being s which operates in h prosodic onsets only. The exponents are consonants of the S group.

Examples:

$h_{S_s CVC}$	stil	'style'
$h_{S_s CVC}$	spor	'sport'

iii. K subsystem: There is one term in this subsystem, K_1, the term being f which operates in h prosodic onsets only. The exponents are consonants of the F group.

Examples:

$h_{K_f CVC}$	fren	'brake'
$h_{K_f CVC}$	flüt	'flute'

The following subsystems are set up for the second C of the CCVC structure.

i. P subsystem: There are two terms in this subsystem, P_2, the terms being p and t, and the exponents are consonants of the P and T groups.

Examples:

CP_pVC	spor	'sport'
CP_tVC	step	'steppe'

ii. K subsystem: There are two terms in this subsystem, K_2, the terms being l and r. The exponents are consonants of the L and R groups.

Examples:

CK_lVC	bluz	'blouse'
CK_rVC	kreş	'nursery school'

The possible combinations of CC— can now be summarized as:

a) SP— when the terms are : $S_s P_{\overline{p,t}}$

b) PK— when the terms are : $P_{p} K_{\overline{r,l}}$

$P_{t,k} K_{\overline{r}}$

$P_{k} K_{\overline{l}}$

c) KK— when the terms are : $K_{r} K_{\overline{r,l}}$

The analysis shows that the initial C system is restricted in CCVC structure, especially when compared to the initial C system in CVC structure. The P subsystem has three terms in CCVC

structure as compared to four terms in CVC. S subsystem has one term in CCVC operating in h prosodic onset, but two in CVC operating in h/h̲ prosodic onset. No N subsystem can be set up for the initial C in CCVC structure. K subsystem has one term in CVCC operating in h prosodic onset, but five terms in CVC, four of which operate in h̲ prosodic onset, and the fifth, f, in h/h̲ prosodic onset.

The subsystems for final C of the CCVC structure are given below. It will be seen that there are some differences from the subsystems set up for final C of native Turkish and assimilated loan noun roots.

i. P subsystem: There are four terms in this subsystem, P_4, the terms being p, t, k, ç. The terms t and ç operate in h prosodic endings and the exponents are consonants of the T and Ç groups. p operates in h̲ prosodic endings, and the exponents are consonants of the P group when a consonant or nothing follows, and the B group when a vowel follows. K operates in h/h̲ prosodic endings the phonetic exponents being consonants of the K group in h endings, and also in h̲ endings when a consonant or nothing follows, but a velar glide when a vowel follows in h̲ prosodic endings.

Examples:

$CCVP_{\underline{p}}^{h}$	grip	'a heavy cold'
$CCVP_{t}^{h}$	brüt	'gross'
$CCVP_{ç}^{h}$	briç	'bridge (card game)'
$CCVP_{k}^{h}$	blok	'block'
$CCVP_{\underline{k}}^{h}$	plâk	'record'

ii. S subsystem : There are two terms in this subsystem, S_2 , the terms being ş and s. Both terms can operate in h/h̲ prosodic endings; in h endings the exponents are consonants of the Ş and S groups, and in h endings, consonants of the Z group and [ʒ].

Examples:

$CCVS_{s}^{h}$	pres	'pressing machine'
$CCVS_{s}^{\underline{h}}$	kriz	'crisis'
$CCVS_{ş}^{h}$	broş	'brooch'
$CCVS_{ş}^{\underline{h}}$	plaj	'beach'

iii. N subsystem: There are two terms in this subsystem, N_2 , the terms being m, n which operate in h̲ prosodic endings only, and the exponents are consonants of the M and N groups.

Examples:

$CCVN_{m}^{\underline{h}}$	gram	'gramme'
$CCVN_{n}^{\underline{h}}$	tren	'train'

iv. K subsystem: There are two terms in this subsystem, K_2 , the terms being f and r. f operates in h/h̲ prosodic endings; the exponents are consonants of the F group in h prosodic ending, and the V group in h̲ ending. r operates in h̲ endings and the exponents are consonants of the R group.

Examples:

$CCVK_{f}^{h}$	blöf	'bluff'
$CCVK_{f}^{\underline{h}}$	grev	'strike'
$CCVK_{r}^{\underline{h}}$	spor	'sport'

The final C in y/w, r/r prosodic CCVC noun root structure can now be represented as follows:

$$CCVC^{h/\underline{h}}_{P_4}$$

$$CCVC^{h/\underline{h}}_{S_2}$$

$$CCVC^{\underline{h}}_{N_2}$$

$$CCVC^{h/\underline{h}}_{K_2}$$

4.3. The Adjective

Like noun roots, adjective roots are also considered in two groups:

i. native and assimilated-loan adjective roots

ii. unassimilated-loan adjective roots

4.3.1. Native and Assimilated-loan Adjective Roots

4.3.1.1. Syllabic Structure

The majority of the native and assimilated-loan adjective roots are monosyllabic and disyllabic, with a limited number of trisyllabic roots[1].

Monosyllabic adjective roots can be of the following structure:

VC	ak	'white'
VCC	ilk	'first'
CVC	mor	'purple'
CVCC	dinç	'fit'

[1] There are trisyllabic adjectives like yumuşak 'soft' kırmızı 'red' which are frequently used, but as they are fewer than monosyllabic and disyllabic adjectives, and there is nothing new to be stated about the C and V systems and prosodies, their structures will not be described. Quite a number of trisyllabic adjectives are also found in slang usage, e.g. dangalak 'stupid', hovarda 'generous'.

Disyllabic adjective roots have mainly the following structures:

V – CVC	uzun	'long'
CV – CVC	büyük	'big'
CVC – CVC	çıplak	'naked'
CVC – CV	yassı	'flat'
CV – CV	yeni	'new'
V – CV	acı	'bitter'
VC – CV	ekşi	'sour'

These structures show that though monosyllabic adjective roots are only C final, disyllabic ones can be C or V final. As for the root initials, these can be C or V in monosyllabic and disyllabic adjectives.

A description of all structures is not given because this would mean a lot of repetition as no new statements need to be made for C and V systems. Therefore only adjective roots of the same types of structure as the noun roots which have already been analysed, i.e. CVC, CV – CVC and CVCC are described in order to enable a comparison of the initial and final C systems in noun and adjective root structures to be made.

4.3.1.2. C Systems

4.3.1.2.1. CVC Structure

The following subsystems can be set up for the initial C system in CVC structure.

i. P subsystem: There are four terms in this subsystem, P_4, the terms being p, t, k, ç. p, t, k operate in h/h̲ prosodic onsets and the exponents are consonants of the P, T, K groups in h onsets and B, D, G in h̲ onsets. ç operates in h prosodic onset and the exponent is [ʧ] .

Examples:

$^{h}_{p}P_4C$	pis	'dirty'

$\underline{h}_{P_p\alpha C}$ boz 'off white'

$h_{P_t\iota C}$ tiz 'shrill'

$\underline{h}_{P_t\iota C}$ dik 'steep'

$h_{P_k\iota C}$ kit 'scarce'

$\underline{h}_{P_k\iota C}$ güç 'difficult'

$h_{P_ç\iota C}$ çiğ 'raw'

ii. S subsystem: There are two terms in this subsystem, S_2, the terms being ş and s. There is no contrast of h/$\underline{h}$ prosodies when the term is ş which operates in h onsets, and the exponents are consonants of the Ş group. s can operate in h/$\underline{h}$ onsets and the exponents are consonants of the S group in h onsets, and the Z group in $\underline{h}$ onsets.

Examples:

$h_{S_ş\iota C}$ şiş 'swollen'

$h_{S_s\alpha C}$ saf 'stupid'

$\underline{h}_{S_s\alpha C}$ zor 'difficult'

iii. N subsystem: There is one term in this system, N_1, the term being m which operates in $\underline{h}$ prosodic onset and the exponent is a consonant of the M group.

Examples:

$\underline{h}_{N_m\alpha C}$ mor 'purple'

iv. K subsystem: There are two terms in this subsystem, K_2, the terms being h and y. h operates in h onsets, and the exponents are consonants of the H group. y operates in h prosodic onsets, and the exponents are consonants of the Y group.

Examples:

$^{h}_{K_h}C$ hür 'free'

$^{h}_{K_y}C$ yaş 'wet'

The initial C in y/w, r/r prosodic CVC adjective root can now be represented as follows:

$h/h_{C_{P_4}}VC$

$h/h_{C_{S_2}}VC$

$h_{C_{N_1}}VC$

$h/h_{C_{K_2}}VC$

The following subsystems are set up for the final C of the CVC structure.

i. P subsystem: There are three terms in this subsystem, P_3, the terms being t, k, ç. t, k operate in h prosodic endings only, and the exponents are consonants of the T and K groups. ç operates in h endings, the exponents being the consonants of the Ç group when a consonant or nothing follows, but consonants of the C group when a vowel follows.

Examples:

$C\imath P^{h}_{t}$	kıt	'scarce'
$C\imath P^{h}_{k}$	dik	'steep'
$C\alpha P^{\underline{h}}_{ç}$	geç	'late'

ii. S subsystem: There are two terms in this subsystem, S_2, the terms being ş and s. There is no contrast of h/$\underline{h}$ prosodies when the term is ş which operates in h prosodic ending only, and the exponents are consonants of the Ş group. s can operate in h/$\underline{h}$ prosodic endings. The exponents in h endings are consonants of the S group, and in $\underline{h}$ endings consonants of the Z group.

Examples:

$C\alpha S^{h}_{ş}$	boş	'empty'
$C\alpha S^{h}_{s}$	has	'real'
$C\imath S^{\underline{h}}_{s}$	düz	'straight'

iii. N subsystem: There are two terms in this subsystem, N_2, the terms being m and n which operate in $\underline{h}$ prosodic endings, and the exponents are consonants of the M and N groups.

Examples:

$C\alpha N^{\underline{h}}_{m}$	ham	'unripe'
$C\alpha N^{\underline{h}}_{n}$	son	'last'

iv. K subsystem: There are five terms in this subsystem, K_5, the terms being f,ḫ,r,l,ğ. h and f operate in h prosodic endings, and the exponents are consonants of the F group. l, r and ğ operate in in $\underline{h}$ prosodic endings, the exponents being consonants of the R and L

groups and vowel length or palatal/velar glide respectively.

Examples:

$C\alpha K^{h}_{h}$	şuh	'dazzling'
$C\alpha K^{h}_{f}$	saf	'pure'
$C\alpha K^{h}_{\underline{r}}$	zor	'difficult'
$C\imath K^{h}_{\breve{g}}$	sığ	'shallow'
$C\imath K^{h}_{l}$	dʊl	'widowed'

The final C in y/w, r/r prosodic CVC adjective root can now be represented as follows:

$$CVC^{h/\underline{h}}_{P_3}$$

$$CVC^{h/\underline{h}}_{S_2}$$

$$CVC^{\underline{h}}_{N_2}$$

$$CVC^{h/\underline{h}}_{K_5}$$

4.3.1.2.2. CV – CVC Structure

The following subsystems are set up for the initial C of CV – CVC structure:

i. P subsystem: There are four terms in this subsystem, P_4, the terms being p, t, k, ç. The terms t and k operate in h/h prosodic onsets, the exponents are consonants of the T and K groups in h onsets, and the D and G groups in h onsets. p operates in h prosodic onsets only, the exponents being the consonants of the B group. ç operates in h onsets, and the exponents are consonants of the Ç group.

Examples:

$\underline{h}_{p}^{PV}-CVC$	büyük	'big'
$h_{t}^{PV}-CVC$	temiz	'clean'
$\underline{h}_{t}^{PV}-CVC$	derin	'deep'
$h_{k}^{PV}-CVC$	küçük	'small'
$\underline{h}_{k}^{PV}-CVC$	güzel	'beautiful'
$h_{ç}^{PV}-CVC$	çevik	'agile'

ii. S subsystem: There are two terms in this subsystem, S_2, the terms being ş and s. There is no contrast of h/$\underline{h}$ prosodies when the term is ş which operates in h onset only, and the exponent is [ʃ]. s can operate in h/$\underline{h}$ prosodic onsets. The exponents in h onsets are consonants of the S group, and in $\underline{h}$ onsets consonants of the Z group.

Examples:

$h_{ş}^{SV}-CVC$	şirin	'pretty'
$h_{s}^{SV}-CVC$	serin	'cool'
$\underline{h}_{s}^{SV}-CVC$	zayıf	'weak'

iii. K subsystem: There are two terms in this subsystem, K_2, the terms being h and y. y operates in $\underline{h}$ prosodic onsets, and the exponents are consonants of the Y group. h operates in h prosodic onsets, and the exponents are consonants of the H group.

Examples:

$\underline{h}_{KV_y} - CVC$ yavaş 'slow'

$\underline{h}_{KV_h} - CVC$ haram 'forbidden'

The initial C systems of the y/w, r/r prosodic CV − CVC adjective root structure can now be represented as follows:

$h/\underline{h}_{C_{P_4}V} - CVC$

$h/\underline{h}_{C_{S_2}V} - CVC$

$h/\underline{h}_{C_{K_2}V} - CVC$

The following subsystems can be set up for the final C of the CV − CVC structure.

i. P subsystem: There are three terms in this subsystem, P_3, the terms being t, k, ç. t operates in h prosodic ending only, and the exponent is [t]. The terms k and ç operate in h endings, and the exponents are consonants of the K and Ç groups when a consonant or nothing follows, and consonants of the C group or a palatal/velar glide when a vowel follows.

Examples:

$CV - CVP_t^h$ bayat 'stale'

$CV - CVP_k^h$ küçük 'small'

$CV - CVP_ç^h$ kiraç 'unfit for cultivation'

ii. S subsystem: There are two terms in this subsystem, S_2, the terms being ş and s. ş operates in h prosodic endings, and the

exponents are consonants of the S group. s operates in h prosodic endings, and the exponents are consonants of the Z group.

Examples:

$CV-CVS_{\underline{s}}^{h}$	geniş	'wide'
$CV-CVS_{\underline{s}}^{\underline{h}}$	temiz	'clean'

iii. N subsystem: There are two terms in this subsystem, N_2, the terms being m and n which operate in h prosodic endings, and the exponents are consonants of the M and N groups.

Examples:

$CV-CVN_{m}^{\underline{h}}$	haram	'forbidden'
$CV-CVN_{n}^{\underline{h}}$	derin	'deep'

iv. K subsystem: There are three terms in this subsystem, K_3, the terms being f, l, r. f operates in h endings only, and the exponents are consonants of the F group. The terms l and r operate in h prosodic endings, and the exponents are consonants of the L and R groups.

Examples:

$CV-CVK_{f}^{h}$	zayıf	'weak'
$CV-CVK_{l}^{\underline{h}}$	güzel	'beautiful'
$CV-CVK_{r}^{\underline{h}}$	bodur	'short'

The final C system in y/w, r/r prosodic $CV \sim CVC$ adjective root structure can now be represented as follows:

$$CV-CVC_{P_3}^{h/\underline{h}}$$

$$CV-CVC_{S_2}^{h/\underline{h}}$$

$$CV-CVC^{\underline{h}}_{N_2}$$

$$CV-CVC^{h/\underline{h}}_{K_3}$$

4.3.1.2.3. CVCC Structure

The following subsystems are set up for the initial C system in CVCC adjective root structure.

i. P subsystem: There are three terms in this subsystem, P_3, the terms being t, k, ç. k operates in h/h prosodic onsets, the exponents are consonants of the K and G groups in h and h prosodic onsets respectively. t and ç operate in h onsets and the exponents are consonants of the D and C groups.

Examples:

$^{h}_{P_k}$ıCC	kunt	'strong'
$^{\underline{h}}_{P_k}$αCC	genç	'young'
$^{\underline{h}}_{P_t}$ıCC	dinç	'fit'
$^{\underline{h}}_{P_ç}$ıCC	cılk	'rotten'

ii. S subsystem: There is one term in this subsystem, s, which operates in h prosodic onsets, and the exponents are consonants of the S group.

Examples:

$^{h}_{S_s}$αCC	sert	'hard'

iii. N subsystem: There is one term in this subsystem, m, which operates in an h prosodic onset, the exponent being a consonant

of the M group.

Example:

$\underset{m}{h}_{N\alpha CC}$ mert 'brave'

iv. K subsystem: There is one term in this subsystem, h, which operates in an h prosodic onset, the exponent being a consonant of the H group.

Example:

$h_{K_h CC}$ hırt 'half cooked'

The initial C system in y/w, r/r prosodic CVCC adjective root structure can be represented as follows:

$h/\underset{P_3}{h}_{C}VCC$

$h_{\underset{1}{S}C}VCC$

$\underset{N_1}{h}_{C}VCC$

$h_{\underset{1}{K}C}VCC$

Two subsysyems, N and K, are set up for the first C of the final cluster. The N subsystem has one term, n, and the exponent is a consonant of the N group. The K subsystem has three terms, K_3, the terms being f, l and r, and the exponents are consonants of the F, L and R groups. A P subsystem is set up for the final C. This has four terms, P_4, the terms being p, t,

k, ç. The terms p and K operate in h endings, and the exponents are consonants of the P and K groups. ç operates in h endings, the exponents being consonants of the Ç group when followed by a consonant or nothing, and the C group when followed by a vowel. The term t operates in h/h endings. In h endings the exponents are consonants of the T group, in h endings consonants of the T group when followed by a consonant or nothing, and consonants of the D group when followed by a vowel.

Examples:

$CVNP^{h}_{n\,t}$	kunt	'strong'
$CVNP^{h}_{n\,ç}$	dinç	'fit'
$CVKP^{h}_{r\,p}$	sarp	'steep'
$CVKP^{h}_{r\,t}$	sert	'hard'
$CVKP^{h}_{ı\,k}$	cılk	'rotten'
$CVKP^{h}_{l\,p}$	kalp	'fake'
$CVKP^{h}_{f\,t}$	çift	'double'

The possible combinations of – CC in CVCC adjective root structure can be summarized as follows:

a) – NP when the terms are : – $N_{n}P_{t,ç}$

b) – KP when the terms are : – $K_{r}P_{p,t,k}$

– $K_{l}P_{k,p}$

– $K_{f}P_{t}$

4.3.2. Unassimilated-loan Adjective Roots

Unassimilated-loan adjective roots are very few, and unlike unassimilated-loan noun roots it is not just their phonetic features or syllabic structures that cause them to be classed as unassimilated loans. To native speakers, such adjectives are clearly associated with other unassimilated loan-words of the same or different word classes to which they are semantically related. It is the meanings of the words which make the relationship apparent, and speakers, through frequent usage, easily identify the semantic connection between them.

Examples:

$\underset{\underline{y}}{r}VC-CVC$ ender 'rare' —— $\underset{\underline{w}}{r^{L}}CV-{}^{y}CVC$ nâdir 'rare'

$\underset{\underline{y}}{r}VC-CVC$ elzem 'most necessary' —— $\underset{\underline{w}}{r^{L}}CV-CVC$ lâzım 'necessary'

$\underset{\underline{w}}{r}CV-{}^{y}CVC$ haris 'ambitious' —— $\underset{\underline{w}}{r}CVC-\underset{\underline{y}}{r}CV-CVC$ muhteris 'ambitious'

$\underset{\underline{y}}{r}CV-CVC$ leziz 'delicious' —— $\underset{\underline{y}}{r}CVC-CVC$ lezzet 'taste'

$\underset{\underline{y}}{r}CV-CVC$ rezil 'vile' —— $\underset{\underline{y}}{r}CV-{}^{w^{L}}CV-{}^{y}CVC$ rezâlet 'vileness'

$\underset{\underline{w}}{r}CV-{}^{r}CVC$ vakur 'proud' —— $\underset{\underline{y}}{r}CV-{}^{w}CVC$ vekar 'pride'

4.4. The Verb

The root in verb forms can usefully be divided into two classes, i.e.

i. pure roots

ii. derived roots

Unlike pure roots, derived roots are formed either by the addition of various suffixes or by the addition of the verbs etmek, olmak, bulmak to substantive and verb roots. Pure roots are native or asssimilated loans only, whereas derived roots can be native and assimilated-loans or unassimilated-loans.

As the suffixes are discussed separately in the following chapter[1], only pure verb roots are analysed here.

4.4.1. Pure Roots

Pure roots in verb forms can be monosyllabic or disyllabic. The possible root structures are as follows:

Monosyllabic

CV	ye	'eat'
CVC	gel	'come'
CVCC	kalk	'get up'
VCC	ölç	'measure'
VC	al	'take'

Disyllabic

V—CV	eri	'melt'
CV—CV	koru	'protect'
CV—CVC	çalış	'work'

As seen from the above examples, verb roots can be C final

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[1] See Chapter 5, pp. 117-127.

or V final, and this distinction is important for the statement of various interrelations between roots and suffixes. Roots can be V initial or C initial, but this has significance only when relations between words in connected speech are being considered.

As the subsystems which can be set up for the C and V systems in monosyllabic verb root structures are applicable to disyllabic verb root structures, it is sufficient here to analyse the structure of the monosyllabic verb root only.

4.4.2. Monosyllabic Verb Root

4.4.2.1. Syllabic Structure

As mentioned above the monosyllabic verb root structure can be CV, CVC, CVCC, VCC, VC. Of these structures VC and CVC make up the majority of verb roots.

y/w and r/r prosodies operate throughout the syllable. Therefore y/w, r/r prosodic monosyllabic verb root structure can be represented as:

$$\begin{matrix} r/\underline{r} \\ y/w \end{matrix}_{VC(C)}$$

and

$$\begin{matrix} r/\underline{r} \\ y/w \end{matrix}_{CV(C)(C)}$$

h/h are not necessarily the same at syllable onset and syllable ending[1] i.e.

$$h/\underline{h}_{VC(C)}\ h/\underline{h}$$

$$h/\underline{h}_{CV(C)(C)}\ h/\underline{h}$$ [2]

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[1] See 4.1.1.

[2] V final root ending is always h prosodic as the exponent is a vowel, therefore voiced, and so h prosodic character of the V final root endings do not need to be marked in the examples.

4.4.2.2. V Systems

In the monosyllabic verb root structure, the V system has two terms, α and ι, except in CV and VCC structures where V system has one term only, α. Thus, the monosyllabic verb roots of CVC structure, for example, can be represented prosodically as follows, with examples of different prosodies, and terms for the V systems given.

$\underset{y}{\overset{r}{}}CαC$	gel	'come'	——	$\underset{y}{\overset{r}{}}Cι C$	bil	'know'
$\overset{r}{}_{y}CαC$	gör	'see'	——	$\overset{r}{}_{y}Cι C$	gül	'laugh'
$\underset{w}{\overset{r}{}}CαC$	kal	'stay'	——	$\underset{w}{\overset{r}{}}Cι C$	kır	'break'
$\overset{r}{}_{w}CαC$	koy	'put'	——	$\overset{r}{}_{w}Cι C$	kur	'wind'

4.4.2.3. C Systems:

4.4.2.3.1. CVC Structure

In the CVC structure of the monosyllabic verb root, the following subsystems are set up for the initial C.

i. P subsystem: There are four terms in this subsystem, P_4, the terms being p, t, k, ç. The exponents in h prosodic onsets are consonants of the P, T, K, Ç groups, and exponents in h prosodic onsets are consonants of the B, D, G, C groups.

Examples:

$\overset{h}{}_{p}P_ι C$	piş	'cook'
$\overset{h}{}_{p}P_ι C$	bul	'find'
$\overset{h}{}_{t}P_ι C$	tüt	'smoulder'
$\overset{h}{}_{t}P_α C$	del	'drill'

$h_{P_k\alpha C}$ kes 'cut'

$\underline{h}_{P_k\alpha C}$ gör 'see'

$h_{P_ç\alpha C}$ çöz 'solve'

$\underline{h}_{P_ç\alpha C}$ cay 'change ones mind'

ii. S subsystem: There are two terms in this subsystem, S_2, the terms being ş and s. There is no contrast of h/$\underline{h}$ prosodies, the terms operate in h prosodic onsets only, and the exponents are consonants of the Ş and S groups.

Examples:

$h_{S_ş\alpha C}$ şaş 'be amazed'

$h_{S_s\alpha C}$ ser 'spread'

iii. K subsystem: There are two terms in this subsystem, K_2, the terms being f and y. There is no contrast of h/$\underline{h}$ prosodies, the terms operate in $\underline{h}$ prosodic onsets, and the exponents are consonants of the V and Y groups.

Examples:

$\underline{h}_{K_f\alpha C}$ ver 'give'

$\underline{h}_{K_y\imath C}$ yık 'pull down'

The initial C system in y/w, r/$\underline{r}$ prosodic CVC verb root can now be represented as follows:

$h/\underline{h}_{C_{P_4}VC}$

$h_{C_{S_2}VC}$

$\underline{h}_{C_{K_2}VC}$

The following subsystems can be set up for the final C in CVC structure:

i. P subsystem: There are four terms in this subsystem, P_4, the terms being p, t, k, ç. The terms p, k, ç operate in h prosodic endings, and the exponents are consonants of the P, K, Ç groups. t operates in h/h prosodic endings, the exponents are consonants of the T group in h endings and also in h endings when followed by a consonant or nothing, but consonants of the D group when followed by a vowel in h endings.

Examples:

$C\alpha P_p^h$	kap	'snatch'
$C\alpha P_k^h$	sök	'uproot'
$C\imath P_c^h$	biç	'cut'
$C\alpha P_t^h$	sat	'sell'
$C\imath P_t^h$	git	'go'

ii. S subsystem: There are two terms in this subsystem, S_2, the terms being ş and s. There is no contrast of h/h prosodies when the term is ş which operates in h prosodic endings only, and the exponents are consonants of the Ş group. s can operate in h/h prosodic endings, the exponents in h endings are consonants of the S group, and in h endings, consonants of the Z group.

Examples:

$C\imath S_s^h$	düş	'fall'
$C\alpha S_s^h$	kes	'cut'
$C\imath S_s^h$	büz	'pleat'

iii. N subsystem: There are two terms in this subsystem, N_2, the terms being m and n, which operate in h prosodic endings, and the exponents are consonants of the M and N groups.

Examples:

$C\alpha N_m^h$	gömm	'bury'
$C\imath N_n^h$	bin	'ride'

iv. K subsystem: There are five terms in this subsystem, K_5, the terms being f, l, r, y and ğ. There is no contrast of h/h prosodies, the terms operate in h endings only. The exponents are consonants of the V, L, R, Y groups and vowel length or velar/palatal glide.

Examples:

$C\alpha K_l^h$	dal	'dive'
$C\alpha K_r^h$	ver	'give'
$C\alpha K_y^h$	koy	'put'
$C\alpha K_f^h$	sav	'send away'
$C\alpha K_{\breve{g}}^h$	boğ	'strangle'

The final C system in y/w, r/r prosodic CVC verb root can now be represented as follows:

$$CVC_{P_4}^{h/h}$$

$$CVC_{S_2}^{h/h}$$

$$CVC_{N_2}^{h}$$

$$CVC_{K_5}^{h}$$

4.4.2.3.2. VC Structure

In monosyllabic verb roots of VC structure the following subsystems are set up for C system.

i. P subsystem: There are four terms in this subsystem, P_4, the terms being p, t, k and ç. There is no contrast of h/h̲ prosodies when the terms are p,k, ç, these operate in h prosodic endings only, and the exponents are consonants of the P, K, Ç groups. The term t operates in h/h̲ prosodic endings, and the exponents are consonants of the T group in h prosodic ending and also in h̲ endings when a consonant or nothing follows, but consonants of the D group when a vowel follows in h̲ prosodic endings.

Examples:

αP_p^h	öp	'kiss'
$\imath P_t^h$	it	'push'
$\alpha P_{\underline{t}}^{\underline{h}}$	et	'do'
αP_k^h	ek	'plant'
$\alpha P_ç^h$	aç	'open'

ii. S subsystem: There are two terms in this subsystem, S_2, the terms being ş and s. ş operates in h prosodic endings only, and the exponents are consonants of the Ş group. s operates in h/h̲ prosodic endings, the exponents are consonants of the S group in h endings, and the Z group in h̲ endings.

Examples:

$\alpha S_ş^h$	eş	'dig'
αS_s^h	as	'hang'
$\imath S_{\underline{s}}^{\underline{h}}$	üz	'make sad'

iii. N subsystem: There are two terms in this subsystem, N_2, the terms being m and n which operate in h prosodic endings only, and the exponents are consonants of the M and N groups.

Examples:

$\alpha N_m^{\underline{h}}$ em 'suck'

$\alpha N_n^{\underline{h}}$ an 'remember'

iv. K subsystem: There are four terms in this subsystem, K_4, the terms being l, r, y, ğ. There is no contrast of h/h prosodies as the terms operate in h prosodic endings, and the exponents are consonants of the L, R, Y groups and vowel length or palatal/velar glide.

Examples:

$\alpha K_l^{\underline{h}}$ al 'take'

$\alpha K_r^{\underline{h}}$ or 'knit'

$\imath K_y^{\underline{h}}$ uy 'obey'

$\alpha K_g^{\underline{h}}$ eğ 'bend'

The C system in y/w, r/r prosodic VC verb root can now be represented as follows:

$VC_{P_4}^{h/\underline{h}}$

$VC_{S_2}^{h/\underline{h}}$

$VC_{N_2}^{\underline{h}}$

$VC_{K_4}^{\underline{h}}$

4.4.2.3.3. CV Structure

There are only two examples with monosyllabic verb root structure CV. V has one term, α, and the following subsystems can be set up for C.

i. P subsystem: This has only one term, t, which operates in h prosodic onset. The exponent is [ʤ].

Example:

$$\underline{h}_{P_t}\alpha \qquad \text{de} \qquad \text{'say'}$$

ii. K subsystem: This has one term, y, which operates in h prosodic onset, and the exponent is [j] .

Example:

$$\underline{h}_{K_y}\alpha \qquad \text{ye} \qquad \text{'eat'}$$

The C system in y/r prosodic verb root can now be represented as follows:

$$\underline{h}C_{P_1}V$$

$$\underline{h}C_{K_1}V$$

4.4.2.3.4. CVCC Structure

In verb root structure CVCC two subsystems are set up for the initial C.

i. P subsystem: There are three terms in this subsystem, P_3 , the terms being t, k and ç. The terms k and ç operate in h prosodic onsets only, and the exponents are consonants of the K and Ç groups. t operates in h/h prosodic onsets, the exponents in h prosodic onset is [t], and in h prosodic onset [ʤ] .

Examples:

$^{h}P_{k}ıCC$	kırp	'shear'
$^{h}P_{ç}aCC$	çarp	'beat'
$^{h}P_{t}aCC$	tart	'weigh'
$^{h}\underline{P}_{t}ıCC$	dürt	'touch'

ii. S subsystem: This has one term, s, which operates in h prosodic onsets, and the exponents are consonants of the S group.

Examples:

$^{h}S_{s}aCC$	serp	'scatter'
$^{h}S_{s}ıCC$	sürt	'rub against'

iii. K subsystem: This has one term, y, which operates in $\underline{h}$ onsets, the exponents being consonants of the Y group.

Examples:

$^{h}\underline{K}_{y}aCC$	yont	'chip into shape'
$^{h}\underline{K}_{y}ıCC$	yırt	'tear up'

The initial C system in y/w,r/$\underline{r}$ prosodic CVCC verb root structure can now be represented as follows:

$$^{h/\underline{h}}C_{P_3}VCC$$

$$^{h}C_{S_1}VCC$$

$$^{\underline{h}}C_{K_1}VCC$$

The syllable ending of the CVCC structure is h prosodic with no contrast of h/$\underline{h}$ prosodies. N and K subsystems are set up for the first C of the cluster. K subsystem has two terms, K_2, the terms being l and r with consonants of the L and R groups as exponents. N subsystem has one term, n, and the exponent is a consonant of the N group. A P subsystem is set up for the final C. This has four terms, P_4, the terms being p,t,k and ç, and the exponents are consonants of the P,T,K and Ç groups.

Examples:

$C\alpha N_n P_t^h$	yont	'chip into shape'
$C\alpha K_r P_p^h$	serp	'scatter'
$C\imath K_r P_t^h$	sürt	'rub against'
$C\imath K_r P_ç^h$	sürç	'stumble'
$C\alpha K_l P_k^h$	kalk	'get up'

The possible combinations of – CC, i.e. final cluster, can be summarized thus:

a) – NP when the terms are: – $N_n P_t$

b) – KP when the terms are: – $K_r P_{p,t,k,ç}$

– $K_l P_k$

4.4.2.3.5. VCC Structure

There are only three verbs with VCC structure. V has one term, α. A two term K subsystem is set up for the first C, the terms being l and r, with exponents [l] and [ɹ]. A P subsystem with two terms, t and ç, is set up for the final C. The terms operate in h prosodic syllable endings and the exponents are [ʈ], [t] and [ʧ].

Examples: $\alpha K_r P_t^h$ art 'increase'

$\alpha K_r P_t^h$ ört 'cover'

$\alpha K_l P_ç^h$ ölç 'measure'

The possible combinations within the cluster in VCC structure can be summarized as:

— KP when the terms are: — $K_r P_t$

— $K_l P_ç$

4.5. Summary and Comparison of Initial and Final Systems

The following tables are set out for the comparison of initial and final C systems in CVC, CVCC and CV—CVCC noun, adjective and verb root structures to show the differences in different word classes.

I. CVC Structure

Initial C			Final C		
Noun	Adjective	Verb	Noun	Adjective	Verb
$^{h}P_{p,t,k,ç}$	$^{h}P_{p,t,k,ç}$	$^{h}P_{p,t,k,ç}$	$P^{h}_{p,t,k,ç}$	$P^{h}_{t,k}$	$P^{h}_{p,k,ç}$
$\underline{^{h}}P_{p,t,k,ç}$	$\underline{^{h}}P_{p,t,k}$	$\underline{^{h}}P_{p,t,k,ç}$	$P\underline{^{h}}_{p,t,k,ç}$	$P\underline{^{h}}_{ç}$	$P\underline{^{h}}_{t}$
$^{h}S_{ş,s}$	$^{h}S_{ş,s}$	$^{h}S_{ş,s}$	$S^{h}_{ş,s}$	$S^{h}_{ş,s}$	$S^{h}_{ş,s}$
$\underline{^{h}}S_{s}$	$\underline{^{h}}S_{s}$	—	$S\underline{^{h}}_{s}$	$S\underline{^{h}}_{s}$	$S\underline{^{h}}_{s}$
$\underline{^{h}}N_{m,n}$	$\underline{^{h}}N_{m}$	—	$N\underline{^{h}}_{m,n}$	$N\underline{^{h}}_{m,n}$	$N\underline{^{h}}_{m,n}$
$^{h}K_{f,h}$	$^{h}K_{h}$	—	$K^{h}_{f,h}$	$K^{h}_{f,h}$	—
$\underline{^{h}}K_{f,l,r,y}$	$\underline{^{h}}K_{y}$	$\underline{^{h}}K_{f,y}$	$K\underline{^{h}}_{f,l,r,y,ğ}$	$K\underline{^{h}}_{r,ğ,l}$	$K\underline{^{h}}_{f,l,r,y,ğ}$

Table II

II. CVCC Structure

Initial C			Final CC		
Noun	Adjective	Verb	Noun	Adjective	Verb
$h_{P_{p,t,k,ç}}$	h_{P_k}	$h_{P_{t,k,ç}}$	$N_m P^h_k$	$N_n P^h_t$	$N_n P^h_t$
$\underline{h}_{P_{p,t,k,ç}}$	$\underline{h}_{P_{k,t,ç}}$	$\underline{h}_{P_t}$	$N_n P^{\underline{h}}_{k,ç}$	$N_n P^{\underline{h}}_{ç,t}$	——
$h_{S_{ş,s}}$	h_{S_s}	h_{S_s}	$N_n S^h_s$	——	——
$\underline{h}_{S_s}$	——	——	$K_f P^h_{t,k}$	$K_r P^h_t$	——
$\underline{h}_{N_m}$	$\underline{h}_{N_m}$	——	$K_l P^h_{p,k}$	$K_l P^h_{p,k}$	$K_l P^h_k$
$h_{K_{f,h}}$	h_{K_h}	——	$K_l P^{\underline{h}}_t$	——	——
$\underline{h}_{K_{r,y}}$	——	$\underline{h}_{K_y}$	$K_r P^h_{p,t,k}$	$K_r P^h_{p,t,k}$	$K_r P^h_{p\,t,k,ç}$
			$K_r P^{\underline{h}}_{t,ç}$	——	——
			$K_r S^h_s$	——	——
			$S_s P^h_{t,k}$	——	——
			$S_ş P^h_k$	——	——

Table III

III. CV – CVC Structure

Initial C		Final C	
Noun	Adjective	Noun	Adjective
$h_{P_{p,t,k,ç}}$	$h_{P_{t,k,ç}}$	P^{h}_{t}	P^{h}_{t}
$\underline{h}_{P_{p,t,k,ç}}$	$\underline{h}_{P_{p,t,k}}$	$P^{\underline{h}}_{p,t,k,ç}$	$P^{\underline{h}}_{k,ç}$
$h_{S_{ş,s}}$	$h_{S_{ş,s}}$	$S^{h}_{ş,s}$	S^{h}_{s}
$\underline{h}_{S_{s}}$	$\underline{h}_{S_{s}}$	$S^{\underline{h}}_{s}$	$S^{\underline{h}}_{s}$
$\underline{h}_{N_{m\ n}}$	——	$N^{\underline{h}}_{m,n}$	$N^{\underline{h}}_{m,n}$
$h_{K_{f\ h}}$	$h_{K_{h}}$	K^{h}_{f}	K^{h}_{f}
$\underline{h}_{K_{f,h,l,r,y}}$	$\underline{h}_{K_{y}}$	$K^{\underline{h}}_{f,l,r,y}$	$K^{\underline{h}}_{l,r}$

Table IV

CHAPTER FIVE

Affixes

5.1. Introduction

The affixes in Turkish can be analysed into two main groups.

i. native Turkish affixes

ii. non-native Affixes

The native Turkish affixes are suffixes, that is they are affixed to the end of words. The non-native affixes are borrowed mainly from Arabic and Persian with a few from French and English, and consist of prefixes and suffixes which are mostly affixed to unassimilated loan-words. These affixes have very limited usage, are non-harmonic[1] , and mainly unproductive in the present day language. These factors make it impossible to consider them as assimilated[2] .

5.2. Native Turkish Suffixes

Suffixes of different grammatical categories are treated

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[1] The suffix 'yor' which originally was an independent verb 'yorır', (see Lewis, op.cit.p.108), and is non-harmonic, is treated as a native Turkish suffix as it operates in very much the same way as other tense suffixes.

[2] For non-native affixes see 5.3.

together as there is basically no difference in the phonological statements required for these categories. Suffixes which are no longer productive and not used frequently in colloquial speech are not included in the analysis.

5.2.1. Suffix Structures

Native Turkish suffixes can have the following structures:

a) V onset

i. Monosyllabic : V , VC

ii. Disyllabic : V−CV , VC−CV , V−CVC

b) C onset

i. Monosyllabic : C , CV , CVC

ii. Disyllabic : C−CV , CV−CV

5.2.2. Prosodies

Suffixes get their y/w and r[1]/r prosodic character from the base[2] to which they are affixed[3]. As for h/h prosodies, subsystems S, N, K of the suffix initial C operate in h/h prosodic onset regardless of the h/h prosodic character of the base ending. The h/h prosodic character of the suffix onset depends on the h/h character of the base ending when the suffix initial is $P_{\overline{t,k,ç}}$ except in the onomatopoeic substantive forming suffix[4], and in suffix structure $C_{\overline{P}}$ which is always ^{h}P. The h/h prosodic character of

---

[1] This is not relevant when suffix V system is α for which see 6.2.2.

[2] The term 'base' is used to cover 'root' and 'root + suffix(es)' as some of the suffixes analysed in this chapter can be suffixed to the suffixed forms of the root as well as to the root.

[3] The prosodic character of any suffix which presents an exception to this statement is given when suffix structures are analysed.

[4] See p. 123, footnote 2.

suffix ending and onset in different suffix structures is shown when suffix structures are analysed[1].

5.2.3. V Systems

The V systems in suffix structure can be α or ɿ, or where there are two Vs in the suffix, the V systems can be the same, i.e.

α – α

or different, i.e. ɿ – ɿ

ɿ – α

α – ɿ

The phonetic exponents of α and ɿ functioning within the different prosodic systems are the same as for roots[2].

5.2.4. C Systems

The following subsystems with the maximum possible terms for initial and final positions are set up for the C systems in suffix structure.

P subsystem – Initial[3]: t, k, ç

Final : p, t, k, ç

S subsystem – Initial : ş, s

Final : ş, s

N subsystem – Initial : m, n

Final : m, n

K subsystem – Initial : l, r, y

Final : l, r, y

---

[1] See 5.2.5.

[2] See 4.1.2.

[3] i.e. suffix initial which in C initial monosyllabic suffixes coincides with syllable initial.

The phonetic exponents of the terms functioning within the different prosodic systems are the same as for roots.

5.2.5. Analysis of the Suffix Structures

Structures of the suffixes included in this thesis are analysed below[1]. The suffixes are classified according to their structure and type of onset, viz. V or C.

5.2.5.1. V Initial Suffixes

A. Monosyllabic

I. V

i.	α	e [2]	1. Dative case suffix [3] 2. Subjunctive mood suffix
ii.	ɪ	i	1. Accusative case suffix 2. De-verb substantive suffix

II. VC

i.	αC	a) αN_n^h	en :	Present participle suffix
		b) αK_r^h	er :	Distributive numeral suffix

---

[1] See 5.2.

[2] The front articulated forms of the suffixes are taken as citation forms as these are the forms normally used in Turkish for uttering the suffixes in isolation. They are in the orthography.

[3] Suffixes are in the main named as in Lewis' 'Turkish Grammar' except in those cases where a distinction has to be made for purposes of description that Lewis does not make, or where Lewis does not name the suffix but only describes its function.

ii. $\imath C$

a) $\imath P^{h}_{p,t,k}$: $\imath P^{h}_{p}$ ip : Gerund suffix

$\imath P^{h}_{t}$ it : De-verb substantive suffix[1]

$\imath P^{h}_{k}$ ik : 1. De-verb substantive suffix[2]

2. De- substantive verb suffix

b) $\imath S^{h/\underline{h}}_{s,ş}$ $\imath S^{\underline{h}}_{s}$ iz : Person pluralizing suffix
1. and 2. persons

$\imath S^{h}_{ş}$ iş : Verbal noun suffix

c) $\imath N^{\underline{h}}_{m,n}$ $\imath N^{\underline{h}}_{m}$ im : 1. De-verb substantive suffix

2. 1. person singular suffix
Type I

$\imath N^{\underline{h}}_{n}$ in : 1. De-verb substantive suffix[3]

2. Genitive case suffix

d) $\imath K^{\underline{h}}_{l}$ il : Passive suffix[4]

B. Disyllabic

I. V – CV

i. $\alpha - {}^{\underline{h}}K_{l}\imath$ e-li : Gerund suffix

ii. $\imath - {}^{\underline{h}}P_{ç}\imath$ i-ci : De-verb substantive suffix

II. VC – CV

$\imath N_{n} - {}^{\underline{h}}P_{ç}\alpha$ in-ce : Gerund suffix

---

[1] This suffix is now used with C final bases only.

[2] This suffix is now used with C final bases only.

[3] This suffix ix now used with C final bases only.

[4] 'il' can be suffixed to all verb roots except where the root final is V or K_{l} in which case the passive suffix is N_{n}. See 5.2.5.2 A I,iii .

III. V – CVC

i. $\alpha - {}^{h}_{\underline{\ç}}P\alpha P^{\underline{h}}_{k}$ e-cek : Future suffix

ii. $\alpha - {}^{h}_{\underline{K}}{}_{r}\alpha P^{\underline{h}}_{k}$ e-rek : Gerund suffix

5.2.5.2. C Initial Suffixes

A. Monosyllabic

I. C

i. $P^{h}_{t,k,ç}$

P_t t : De-verb suffix – causative

P_k k : 1. 1. person plural suffix – Type II

2. De-verb substantive suffix

$P_ç$ ç : De-verb substantive suffix

ii. $S^{h/\underline{h}}_{s,ş}$

$S^{\underline{h}}_{s}$ z : 1. Collective numeral suffix

2. Aorist negative suffix (1. and 2. persons sg. and pl.)

$S^{h}_{ş}$ ş : De-verb verb suffix – reciprocal

iii. $N^{\underline{h}}_{m,n}$

N_m m : 1. 1. person sg. suffix – Type II

2. Possessive suffix (1. person)

N_n n : 1. De-verb verb suffix – reflexive

2. 2. person sg. suffix – Type II

3. Possessive suffix 2. person

4. Passive suffix [1]

---

[1] See p. 121, footnote 4.

iv. $K^{h}_{l,r,y}$

K_l	l	: De-substantive verb suffix
K_r	r	: Aorist suffix
K_y	y	: Copula suffix [1]

II. CV

a) Cα

i. $P^{\alpha}_{t,ç}$

P^{α}_{t}	de	: 1. Locative case suffix 2. Onomatopoeic verb forming suffix
$P^{\alpha}_{ç}$	ce	: De-substantive substantive suffix – diminutive

ii. $^{h}S^{\alpha}_{s}$ se : Conditional suffix

iii. $^{h}N^{\alpha}_{m}$ me : Negative suffix

iv. $^{h}K^{\alpha}_{l}$ le : 1. De-substantive verb suffix
2. Onomatopoeic verb forming suffix

b) Cι

i. $P^{ι}_{t,k,ç}$

$^{h}P^{ι}_{t}$	ti	: Onomatopoeic substantive forming suffix [2]
$P^{ι}_{t}$	di	: Past suffix
$P^{ι}_{k}$	gi	: De-verb substantive suffix
$P^{ι}_{ç}$	ci	: De-substantive substantive suffix

---

[1] This suffix does not occur in absolute final position, it is always followed by another suffix.

[2] The suffix onset is always h prosodic regardless of the h/h prosodic character of the base ending.

ii. $^{h}S_{s}\imath$ — si : Possessive suffix (3. person)

iii. $^{h}N_{m}\imath$ — mi : Interrogative suffix[1]

iv. $^{h}K_{l}\imath$ — li : De-substantive substantive suffix

III. CVC

1. $P_{t,k,ç}V\,C^{h/\underline{h}}$

a) $P_{t,k}\alpha C^{\underline{h}}$

i. $P_{t}\alpha N_{n}$ — den : Ablative case suffix

ii. $P_{k}\alpha N_{n}$ — gen : De-verb substantive suffix

iii. $^{yh}P_{k}\alpha N_{n}$ — ken : Gerund suffix[2]

b) $P_{t,k,ç}\imath\,C^{\underline{h}}$

i. $P_{t}\imath K_{r}$ — dir : De-verb verb suffix — causative

ii. $P_{k}\imath N_{n}$ — gin : De-verb substantive suffix

iii. $P_{c}\imath P_{k}$ — cik : De-substantive substantive suffix — diminutive

2. $^{h}S\alpha,\imath VC^{\underline{h}}$

a) $S_{s}\alpha K_{l}$ — sel : De-substantive substantive suffix

b) $S_{s}\imath C$

i. $S_{s}\imath S_{s}$ — siz : De-substantive substantive suffix

ii. $S_{s}\imath N_{n}$ — sin : 1. Personal suffix (Imperative — 3. person)

---

[1] Although Lewis calls this the interrogative particle it is treated as a suffix here, as it functions phonologically in the same way as the other suffixes.

[2] 'ken' is always h onset /y prosodic regardless of the h/h ending and y/w prosodic character of the base.

2. 2. person singular suffix — Type I

3. $\underline{h}_{mA,\imath}NVC^{h/\underline{h}}$

a) $N_m\alpha C^{\underline{h}}$	i.	$N_m\alpha P_k$	mek	: Infinitive suffix
	ii.	$N_m\alpha N_n$	men	: De-verb substantive suffix
b) $N_m\imath C^{\underline{h}}$		$N_m\imath S_{\c{s}}$	miş	: miş past/inferential suffix

4. $\underline{h}K_{l,y}V_{\alpha,\imath}C^{\underline{h}}$

a) $K_{l,y}\alpha C^{\underline{h}}$	i.	$K_l\alpha K_r$	ler	: Plural suffix
	ii.	$^{r}_{w}K_y\alpha K_r$	yor	: Present tense suffix[1]
b) $K_l\imath C^{\underline{h}}$	i.	$K_l\imath P_k$	lik	: De-substantive substantive suffix
	ii.	$K_l\imath N_m$	lim	: 1. person plural suffix — Type III

B. Disyllabic

I. C — CV

$N_{m,n}^{\underline{h}\ h/\underline{h}}-CV_{\alpha,\imath}$

a) $N_m-{}^{h}S_s\alpha$			mse	: De-substantive verb suffix
b) $N_m-{}^{h/\underline{h}}C\imath$	i.	$N_m-{}^{h}S_s\imath$	msi	: De-substantive substantive suffix
	ii.	$N_n-{}^{\underline{h}}P_{\c{c}}\imath$	nci	: Ordinal numeral suffix

[1] 'yor' is always w/r prosodic regardless of the prosodic character of the base.

$N_n - {}^{h}P_t\iota$ nti : De-verb substantive suffix

II. CV – CV

$\underset{m}{h}N\alpha - \underset{l}{h}K\iota$ meli : Necessitative suffix

5.3. Non-native Affixes

In this section the structure of the four non-native affixes which are productive, is analysed. Other non-native affixes are no longer productive, and as mentioned on p.117 , they have limited occurrences as affixed to unassimilated loanwords.

5.3.1. The Structure of the Non-native Affixes

Non-native affixes do not take their prosodic character from the bases to which they are affixed, and therefore prosodies are given for each structure.

A. Suffixes

I. CV – CV

i. $\underset{h}{\overset{r}{w}}K\alpha - \underset{n}{y}N\alpha$ hane : indicates place of something

ii. $\underset{r}{\overset{r}{w}}K\alpha - \underset{r}{y}K\iota$ vari : indicates likeness, similarity

II. CVC – CVC

$\underset{m}{\overset{r}{w}}N\alpha\underset{s}{S}\overset{h}{} - \underset{y}{r}K\alpha\underset{n}{N}$ masyon : is used to make nouns

B. Prefixes

VC – CV

$\underset{n}{\overset{r}{w}}\alpha N\overset{h}{} - \overset{y}{h}P_t\iota$ anti : indicates a state of being against something

5.4. Conclusions

The analysis of the suffix structures in the above section shows that in suffixes terms of the subsystems for C in initial and final positions are restricted compared to roots. This restriction of terms can be shown in tables V and VI as follows.

Initial C

Root	p	t	k	ç	s	ş	m	n	f	h	l	r	y	–
Suffix	–	t	k	ç	s	ş	m	n	–	–	l	r	y	–

Table V

Final C

Root	p	t	k	ç	s	ş	m	n	f	–	l	r	y	ğ
Suffix	p	t	k	ç	s	ş	m	n	–	–	l	r	–	–

Table VI

CHAPTER SIX

Junction Prosodies

6.1. Introduction

There are many juncture points in connected speech in Turkish which exhibit interesting features . The present chapter analyses types of juncture between 'root + suffix', and 'suffix + suffix' which occur in a slow style of speech[1], and junction prosodies are set up to show these relations. Apart from y/w, r/r prosodies, junction prosodies depend on the type of base ending and suffix onset. Therefore,the same suffix can have different junction prosodies with different bases, depending on the base ending[2].

6.2. Root + Suffix Junction Prosodies

6.2.1. y/w Prosodies

The y/w prosodic character of the suffixes is determined by the y/w prosodic character of the roots to which they are affixed. Therefore these prosodies extend over root and suffix.

---

[1] See Chapter 8 for junctures in a quick style of speech.

[2] See, for example, C final root + N_m—CV, 6.2.10, and V final root + N_m—CV, 6.2.12.

This is applicable to all suffixes[1] except 'yor' and 'ken'[2] and non-native affixes[3].

Examples:

$y_{\overset{\text{S}\alpha}{\text{ş}}\overset{\text{P}\alpha}{\text{k}}\overset{\text{K}}{\text{r}}}$	+ $\overset{\text{P}\alpha}{\text{t}}$	şeker	+ de	'in sugar'[4]
$w_{\overset{\text{P}\imath}{\text{t}}\overset{\text{S}}{\text{s}}}$	+ $\overset{\text{P}\alpha}{\text{t}}$	tuz	+ da	'in salt'
$y_{\overset{\text{S}\alpha}{\text{ş}}\overset{\text{P}\alpha}{\text{k}}\overset{\text{K}}{\text{r}}}$	+ $\overset{\text{K}\imath}{\text{l}}$	şeker	+ li	'sweet'
$w_{\overset{\text{P}\imath}{\text{t}}\overset{\text{S}}{\text{s}}}$	+ $\overset{\text{K}\imath}{\text{l}}$	tuz	+ lu	'salted'

6.2.2. r Prosody

r prosody can be set up as a junction prosody only where the suffix V system is ɪ and no α intervenes between the ɪ syllable of the suffix and the root. In other words, unlike y/w prosodies r prosody does not extend over the root and suffix regardless of suffix V systems.

Examples :

i. Suffix V system :

$r_{\overset{\text{P}\imath}{\text{t}}\overset{\text{S}}{\text{s}}}$	+ $\overset{\text{K}\imath}{\text{l}}$	tuz	+ lu	'salted'

---

[1] i. e. suffixes analysed in this thesis.

[2] See p. 125, 5.2.5.2 AIII 4a, and p. 124, 5.252.AIII 1a.

[3] Junctions of roots and non-native affixes are not analysed here. Their junctions with roots are more like those of word+word, i.e. there is no harmony, and therefore no y/w, r/r junction prosodies.

[4] In each section only the junction prosody under discussion is shown in the examples.

ii. Suffix V system α :

$\underline{r}_{P_{\iota}S_{s}}$ + $\underline{r}_{P\alpha}$ tuz + da 'in salt'

iii. Suffix V systems α — ι:

$\underline{r}_{P\alpha K_{r}}$ + $\underline{r}_{\alpha K_{l}\iota}$ gör + eli 'since seeing'

6.2.3. r Prosody

Unlike r prosody, r prosody extends over root and suffix regardless of suffix V systems.

Examples:

i. Suffix V system ι :

$\underline{r}_{S\alpha P\alpha K_{r}}$ + $K_{l\iota}$ şeker + li 'sweet'

ii. Suffix V system α :

$\underline{r}_{S\alpha P\alpha K_{r}}$ + $P\alpha$ şeker + de 'in sugar'

iii. Suffix V systems α — ι :

$\underline{r}_{P_{\iota}K_{l}}$ + $\alpha K_{l\iota}$ bil + eli 'since knowing'

6.2.4. H Prosody

I. C final roots + V initial suffixes, i.e. — C + V —

Suffixes with V onset have H prosodic junction with C final roots where the subsystems P, S, N, K function in a h

prosodic root ending. The exponence of the prosody is syllabification and voice, i.e. root final C syllabifies with the suffix.

Examples:

i.	$CVS^{\underline{h}}_{s}$	+	V	$\longrightarrow$	$CV\text{-}\overset{\underline{H}}{S}V_{s}$	
	boz	+	i		bo-zu	'the grey'
ii.	$CVP^{\underline{h}}_{p}$	+	V	$\longrightarrow$	$CV\text{-}\overset{\underline{H}}{P}V_{p}$	
	dip	+	i		di-bi	'the bottom'
iii.	$V\text{-}CVP^{\underline{h}}_{k}$	+	V	$\longrightarrow$	$V\text{-}CV\text{-}\overset{\underline{H}}{P}V_{k}$	
	elek	+	i		ele-gi	'the sieve'
iv.	$CVN^{\underline{h}}_{m}$	+	V	$\longrightarrow$	$CV\text{-}\overset{\underline{H}}{N}V_{m}$	
	cam	+	e		ca-ma	'to the window'
v.	$VN^{\underline{h}}_{n}$	+	VC	$\longrightarrow$	$V\text{-}\overset{\underline{H}}{N}VC_{n}$	
	on	+	er		o-nar	'ten each'
vi.	$CVP^{\underline{h}}_{t}$	+	VC	$\longrightarrow$	$CV\text{-}\overset{\underline{H}}{P}VC_{t}$	
	git	+	en		gi-den	'one who goes'
vii.	$CVS^{\underline{h}}_{s}$	+	VC	$\longrightarrow$	$CV\text{-}\overset{\underline{H}}{S}VC_{s}$	
	kaz	+	ış		ka-zış	'digging'
viii.	$CVK^{\underline{h}}_{r}$	+	VC	$\longrightarrow$	$CV\text{-}\overset{\underline{H}}{K}VC_{r}$	
	gör	+	ip		gö-rüp	'after seeing'

ix. CVS_{s}^{h} + VC ⟶ $CV\overset{H}{-}SVC_{s}$

göz + ik gö-zük 'appear'

x. $CV\text{-}CVK_{l}^{h}$ + VC ⟶ $CV\text{-}CV\overset{H}{-}KVC_{l}$

güzel + im gü-ze-lim 'I am beautiful'

xi. CVK_{y}^{h} + VC ⟶ $CV\overset{H}{-}KVC_{y}$

yay + in ya-yın 'publication'

xii. $CV\text{-}CVN_{n}^{h}$ + VC ⟶ $CV\text{-}CV\overset{H}{-}NVC_{n}$

kadın + iz kadı-nız 'we are women'

xiii. CVK_{r}^{h} + VC ⟶ $CV\overset{H}{-}KVC_{r}$

ger + il ge-ril 'be stretched'

xiv. CVK_{l}^{h} + V-CV ⟶ $CV\overset{H}{-}KV_{l}\text{-}CV$

bul + eli bu-la-lı 'since finding'

xv. CVS_{s}^{h} + V-CV ⟶ $CV\overset{H}{-}SV_{s}\text{-}CV$

yaz + i ci ya-zıcı 'one who writes'

xvi. $CVK_{\check{g}}^{h}$ + VC-CV ⟶ $CV\overset{H}{-}KVC_{\check{g}}\text{-}CV$

kov + in ce ko vun ca 'when he dismisses'

xvii. CVN_{m}^{h} + V-CVC ⟶ $CV\overset{H}{-}NV_{m}\text{-}CVC$

göm + e cek gö-me-cek 'he will bury'

xviii. $CVS^{\underline{h}}_{s}$ + V-CVC ⟶ $CV \overset{\underline{H}}{-} SV_{s}$-CVC

yüz + e-rek yü-ze-rek 'by swimming'

II. C final roots + C initial suffixes, i.e. − C + C −

A. Suffixes with $^{\underline{h}}C$ onset have $\underline{H}$ prosodic junction with C final roots where the subsystems P, S, N, K function in a $\underline{h}$ root ending. The exponence of the prosody (marking the relation) is voice except for the junction of $-P^{\underline{h}}$ + P− where the exponence is voicelessness (see examples vii and viii below).

Examples:

i. $CVN^{\underline{h}}_{m}$ + $P_{t}VC$ ⟶ $CVN_{m} \overset{\underline{H}}{-} P_{t}VC$

cam + den cam-dan 'from the window'

ii. $CVN^{\underline{h}}_{n}$ + $^{\underline{h}}K_{l}VC$ ⟶ $CVN_{n} \overset{\underline{H}}{-} K_{l}VC$

han + ler han-lar 'inns'

iii. $VK^{\underline{h}}_{l}$ + $P_{t}V$ ⟶ $VK_{l} \overset{\underline{H}}{-} P_{t}V$

el + de el-de 'in hand'

iv. $VK^{\underline{h}}_{f}$ + $P_{ç}VC$ ⟶ $VK_{f} \overset{\underline{H}}{-} P_{ç}VC$

ev + cik ev-cik 'dear little house'

v. $CVK^{\underline{h}}_{y}$ + $^{\underline{h}}N_{m}VC$ ⟶ $CVK_{y} \overset{\underline{H}}{-} N_{m}VC$

say + men say-man 'accountant'

vi. $CV\text{-}CVP^{\underline{h}}_{p}$ + $^{\underline{h}}K_{l}VC$ ⟶ $CV\text{-}CVP_{p} \overset{\underline{H}}{-} K_{l}VC$

ço rap + ler çorap-lar 'socks'

vii. CVP^{h}_{p} + PVC_{t} ⟶ $CVP_{p} \overset{H}{-} PVC_{t}$

dip + den dip-ten 'from the bottom'

viii. $CV\text{-}CVP^{h}_{k}$ + PV_{t} ⟶ $CV\text{-}CVP_{k} \overset{H}{-} PV_{t}$

ka pak + de ka-pak-ta 'on the lid'

ix. $CV\text{-}CVS^{h}_{s}$ + $^{h}KVC_{l}$ ⟶ $CV\text{-}CVS_{s} \overset{H}{-} KVC_{l}$

te miz + lik te·miz-lik 'cleanliness'

B. C final roots where the subsystems P, S, K function in a h root ending also have H prosodic junction with ^{h}C onset suffixes, with voice at suffix onset as the exponent.

Examples:

i. VP^{h}_{p} + $^{h}KVC_{l}$ ⟶ $VP_{p} \overset{H}{-} KVC_{l}$

ip + ler ip-ler 'ropes'

ii. CVP^{h}_{t} + $^{h}NVC_{m}$ ⟶ $CVP_{t} \overset{H}{-} NVC_{m}$

sat + mek sat-mak 'to sell'

iii. $VS^{h}_{ş}$ + $^{h}KV_{l}$ ⟶ $VS_{ş} \overset{H}{-} KV_{l}$

iş + li iş-li 'embroidered'

iv. CVK^{h}_{f} + $^{h}KV_{l}$ ⟶ $CVK_{f} \overset{H}{-} KV_{l}$

küf + li küf-lü 'mouldy'

v. $CVS^{h}_{ş}$ + $^{h}KVC_{l}$ ⟶ $CVS_{ş} \overset{H}{-} KVC_{l}$

boş + lik boş-luk 'emptiness'

$\underline{h}_{C}$ onset suffixes of the following structures are exceptions to this type of prosodic relation with C final roots:

$$\underline{h}_{\substack{K\\y}}VC \quad , \quad N\underline{h}_{\substack{m\\n}}-CV$$

For the juncture of these suffixes with C final roots see 6.2.10 .

III. V final roots + C initial suffixes, i.e. — V + C —

Where the root ending is V and the suffix onset is C_p or $\underline{h}_{C_{N,K}}$, there is also $\underline{H}$ prosodic junction with voice as the exponent. Examples:

i.	CV-CV	+	$P_t VC$	⟶	CV-CV $\overset{\underline{H}}{-}$ $P_t VC$	
	ko va	+	den		ko-va-dan	'from the bucket'
ii.	V-CV	+	$P_t V$	⟶	V-CV $\overset{\underline{H}}{-}$ $P_t V$	
	o ku	+	di		o-ku-du	'he read'
iii.	V-CV	+	$\underline{h}_{m}NVC$	⟶	V-CV $\overset{\underline{H}}{-}$ NVC_m	
	a ra	+	mek		a-ra-mak	'to look for'
iv.	V-CV	+	$P_{\check{c}} V$	⟶	V-CV $\overset{\underline{H}}{-}$ $P_c V$	
	i ri	+	ce		i-ri-ce	'quite large'
v.	CV-CV	+	$\underline{h}_{l}KVC$	⟶	CV-CV $\overset{\underline{H}}{-}$ $K_l VC$	
	ke çi	+	ler		ke-çi-ler	'goats'

The types of junction where $\underline{H}$ prosody operates may be summarized as follows:

I. $-\ C^{\underline{h}}\ +\ \begin{cases} \underline{h}V- \\ \underline{h}C- \end{cases}$

II. $-\ C^{h}_{P,S,K}+\ \underline{h}C-$

III. $-\ V\ +\begin{cases} \underline{h}C_{N,\overline{K}} \\ C_{P}- \end{cases}$

6.2.5. H Prosody

I. C final roots + V initial suffixes, i.e. − C + V −

Suffixes with V onset have H prosodic junction with C final roots where the subsystems P, S, K function in a h root ending. The exponence of the prosodic relation is syllabification and voicelessness.

Examples:

i.	CVP^{h}_{p}	+	V	⟶	$CV \overset{H}{-} PV_{p}$	
	sap	+	i		sa-pı	'the handle'
ii.	CVP^{h}_{t}	+	VC	⟶	$CV \overset{H}{-} PVC_{t}$	
	sat	+	en		sa-tan	'one who sells'
iii.	VP^{h}_{k}	+	VC	⟶	$V \overset{H}{-} PVC_{k}$	
	ak	+	iş		a-kış	'flow'
iv.	$CVP^{h}_{ç}$	+	V	⟶	$CV \overset{H}{-} PV_{c}$	
	saç	+	i		sa-çı	'the hair'
v.	CVS^{h}_{s}	+	V	⟶	$CV \overset{H}{-} SV_{s}$	
	sis	+	i		si-si	'the fog'

vi. $VS_s^h + V \longrightarrow V \overset{H}{-} SV_s$

iş + e i-şe 'to work'

vii. $CVS_ş^h + V \longrightarrow CV \overset{H}{-} SV_ş$

boş + i bo-şu 'the empty one'

viii. $CVK_t^h + V \longrightarrow CV \overset{H}{-} KV_t$

küf + i kü-fü 'the mould'

II. C final roots + C initial suffixes, i.e. – C + C –

A. Suffixes with ^hC onset have H prosodic relationship with C final roots where the subsystems P, S, K function in a h root ending. The exponence of the prosodic relation is voicelessness.

Examples:

i. $VP_p^h + PVC_t \longrightarrow VP_p \overset{H}{-} PVC_t$

ip + den ip-ten 'from rope'

ii. $CVP_t^h + PV_ç \longrightarrow CVP_t \overset{H}{-} PV_c$

süt + çi süt-çü 'milkman'

iii. $VP_k^h + {}^hSVC_s \longrightarrow VP_k \overset{H}{-} SVC_s$

ek + siz ek-siz 'whole'

iv. $CVS_ş^h + PVC_t \longrightarrow CVS_ş \overset{H}{-} PVC_t$

beş + den beş-ten 'from five'

v. $VS_ş^h + {}^hSVC_s \longrightarrow VS_ş \overset{H}{-} SVC_s$

eş + siz eş-siz 'matchless'

vi. CVK_{h}^{h} + $_{h}SVC_{s}$ ⟶ $CVK_{h}\overset{H}{-}SVC_{s}$

ruh + siz ruh-suz 'lifeless'

B. Suffixes with $_{h}C$ onset have H prosodic relationship with C final roots where the subsystems P, S, N, K operate in a h root ending. The exponence of the prosody marking the relation is voicelessness.

Examples:

i. CVP_{p}^{h} + $_{h}SVC_{s}$ ⟶ $CVP_{p}\overset{H}{-}SVC_{s}$

dip + siz dip-siz 'bottomless'

ii. CVS_{s}^{h} + $_{h}SVC_{s}$ ⟶ $CVS_{s}\overset{H}{-}SVC_{s}$

tuz + siz tuz-suz 'unsalted'

iii. CVN_{n}^{h} + $_{h}SVC_{s}$ ⟶ $CVN_{n}\overset{H}{-}SVC_{s}$

kan + siz kan-sız 'bloodless'

iv. CVK_{r}^{h} + $_{h}SV_{s}$ ⟶ $CVK_{r}\overset{H}{-}SV_{s}$

gör + se gör-se 'if he sees'

$_{h}C$ onset suffix of $\dot{S}_{s}$ structure is an exception to this type of prosodic relation with C final roots[1].

III. V final roots + C initial suffixes, i.e. — V + C —

Where the root ending is V and the suffix onset is C with

---

[1] For the juncture of this suffix with C final roots see 6.2.9 .

subsystem S functioning in h onset, there is also H prosodic junction with voicelessness as the exponent.

Examples:

i.	CV-CV	+	$^{h}_{S}SV$	CV-CV $\overset{H}{-}$ $_{S}SV$	
	ba-ba	+	si	ba-ba-si	'his father'
ii.	CV-CV	+	$^{h}_{S}SVC$	CV-CV $\overset{H}{-}$ $_{S}SVC$	
	ka-pɪ	+	sɪz	ka-pɪ-sɪz	'without a door'

The junctions where H prosody operates may be summarized as follows:

I. $- C^{h}_{P,S,K} + \begin{cases} V - \\ {}^{h}C - \end{cases}$

II. $- C^{h}_{P,S,N,K} + \quad {}^{h}C -$

III. $- V + {}^{h}C_{S} -$

6.2.6. J Prosody

V final roots + V initial suffixes, except suffixes of αK_{r} and ιN_{n} structure, have their relationship marked by J prosody, the exponent of which is the voiced palatal frictionless continuant, i.e. [j] .

Examples:

i.	CV-CV	+	V	CV-CV $\overset{J}{\text{----}}$ V	
	ba-ba	+	i	ba-ba-yɪ	'the father'

ii. CV-CV + V ⟶ CV-CV (J) V

sarı + i sarı yı 'the yellow'

iii. V-CV + V ⟶ V-CV (J) V

ova + e ova ya 'to the valley'

iv. CV-CV + VC ⟶ CV-CV (J) VC

yürü + iş yürü yüş 'walking'

v. CV-CV + VC ⟶ CV-CV (J) VC

koru + en koru yan 'one who protects'

6.2.7. N Prosody

V final roots + V initial suffix of $\imath N_n$ structure have their relationship marked by N prosody, the exponent of which is a denti-alveolar nasal.

Examples:

i. CV-CV + $\imath N_n$ ⟶ CV-CV (N) N_n

masa + in masa nın 'of the table'

ii. CV-CV + $\imath N_n$ ⟶ CV-CV (N) N_n

kişi + in kişi nin of the men'

6.2.8. S Prosody

V final roots + V initial suffix of αK_r structure have their relationship marked by S prosody, the exponent of which is the

palato-alveolar sibilant, i.e. [ʃ].

Examples:

i.	V-CV	+	αK_r	⟶	V-CV $\overset{S}{\text{-----}}$ αK_r	
	iki	+	er		iki şer	'two each'
ii.	VC-CV	+	αK_r	⟶	VC-CV $\overset{S}{\text{-----}}$ αK_r	
	altı	+	er		alti şar	'six each'

6.2.9. ∅ Prosody

C final roots + C initial suffixes of $S_s V_\iota$ structure have their relationship marked by ∅ prosody, the exponence of which is the absence of a phonetic exponent for suffix initial C.

Example:

i.	VC	+	$S_s V_\iota$	⟶	VC $\overset{\emptyset}{\text{-----}}$ $S_s V_\iota$	
	ev	+	si		ev i	'his house'
ii.	CVC	+	$S_s V_\iota$	⟶	CVC $\overset{\emptyset}{\text{-----}}$ $S_s V_\iota$	
	kol	+	si		kol u	'his arm'
iii.	VC	+	$S_s V_\iota$	⟶	VC $\overset{\emptyset}{\text{-----}}$ $S_s V_\iota$	
	ip	+	si		ip i	'his rope'

6.2.10. ə Prosody

C final roots + suffixes of the structures C and C-CV with subsystems P_k, $S_{ş,s}$, $N_{m,n}$, $K_{l,r}$ and $N_{m,n}$-CV, have their relationships

marked by ə prosody, the exponence of which is syllabicity characterized by openness when the suffix structure is P_k, openness or closeness when the structure is $K_{l,r}$[1], and closeness when the suffix structure is S, N and N—CV. 'yor' which is treated as a suffix, viz. K_yVC, fits into this pattern as it also has this type of junction with C final roots, characterized by closeness.

Examples:

i.	CVC	+	P_k	⟶	CVC$\overset{ə}{\text{------}}P_k$	
	bat	+	k		batak	'marsh'
ii.	CVC	+	S_s	⟶	CVC$\overset{ə}{\text{------}}S_s$	
	beş	+	z		beş iz	'quintuplet'
iii.	CVC	+	S_s	⟶	CVC$\overset{ə}{\text{------}}S_{ş}$	
	bul	+	ş		bul uş	'discovery'
iv.	VC	+	N_m	⟶	VC$\overset{ə}{\text{------}}N_m$	
	ev	+	m		ev im	'my home'
v.	CVC	+	N_n	⟶	CVC$\overset{ə}{\text{------}}N_n$	
	böl	+	n		böl ün	'be divided'
vi.	VC	+	K_l	⟶	VC$\overset{ə}{\text{------}}K_l$	
	az	+	l		az al	'reduce'
vii.	CVC	+	K_r	⟶	CVC$\overset{ə}{\text{------}}K_r$	
	bin	+	r		bin er	' he rides'

[1] In thirteen monosyllabic verb roots ending in $-K_{l,r}$ + K_r suffix, syllabicity is characterized by closeness, in the rest, it is characterized by openness.

viii. VC + N_n-CV ⟶ VC $\overset{e}{\text{-----}}$ N_nCV

üç + nci üç üncü 'third'

ix. CV-CVC + N_m-CV ⟶ CV-CVC $\overset{e}{\text{-----}}$ N_mCV

yeşil + msi yeşil imsi 'greenish'

x. VC + N_m-CV ⟶ VC $\overset{e}{\text{-----}}$ N_mCV

az + mse az ımsa 'belittle'

xi. CVC + K_yVC ⟶ CVC $\overset{e}{\text{-----}}$ K_yVC

gel + yor gel iyor 'he is coming'

6.2.11. cc Prosody

Polysyllabic C final roots of $K_{l,r}$ ending + C structure suffix with subsystem P_t, and those of N_n ending + the suffix $P_ç$, have their relationships marked by cc prosody, the exponent of which is a consonant cluster. cf. 6.2.10 where the C initial suffixes are linked by e prosody with exponence of syllabicity.

Examples:

i. CV-CVC + P_t ⟶ CV CVC $\overset{cc}{\text{-----}}$ P_t

düzel + t düzelt 'rectify'

ii. V-CVC + P_t ⟶ V CVC $\overset{cc}{\text{-----}}$ P_t

otur + t oturt 'make sit down'

iii. V-CVC + $P_ç$ ⟶ V CVC $\overset{cc}{\text{-----}}$ P_c

inan + ç inanç 'belief'

6.2.12. F Prosody

V final roots + suffixes of the structures C and C-CV with the subsystems $P_{t,k}$, $S_{s,ş}$, $N_{m,n}$, $K_{l,r,y}$, $N_{m,n}$-CV have their relationships marked by F prosody, the exponence of which is syllable finality.

Example:

i.	CV-CV	+	P_k	⟶	CV-CV$\overset{F}{\text{-----}}P_k$	
	tara	+	k		tarak	'comb'
ii.	V-CV	+	$^{h}S_s$	⟶	V-CV$\overset{F}{\text{-----}}S_s$	
	iki	+	z		ikiz	'twin'
iii.	CV-CV	+	$^{h}S_{ş}$	⟶	CV-CV$\overset{F}{\text{-----}}S_s$	
	tanı	+	ş		tanış	'be introduced'
iv.	CV-CV	+	N_m	⟶	CV-CV$\overset{F}{\text{-----}}N_m$	
	baba	+	m		babam	'my father'
v.	V-CV	+	N_n	⟶	V-CV$\overset{F}{\text{-----}}N_n$	
	ara	+	n		aran	'look out'
vi.	CVC-CV	+	K_l	⟶	CVC-CV$\overset{F}{\text{-----}}K_l$	
	sivri	+	l		sivril	'sharpen'
vii.	VC-CV	+	K_r	⟶	VC-CV$\overset{F}{\text{-----}}K_r$	
	anla	+	r		anlar	'he understands'

viii. CVC-CV + K_y + — ⟶ CVC CV $\overset{F}{\text{----}}$ K_y + — [1]

hasta + y + — hastay + — 'be ill'

ix. CV-CV + N_mCV ⟶ CV-CV $\overset{F}{\text{----}}$ N_m-CV

sarı + msi sarımsı 'yellowish'

x. VC-CV + N_nCV ⟶ VC-CV $\overset{F}{\text{----}}$ N_n-CV

altı + nci altıncı 'sixth'

xi. V-CV + N_mCV ⟶ V-CV $\overset{F}{\text{----}}$ N_m-CV

iyi + mse iyimse 'be optimistic'

6.2.13. i Prosody

V ending roots + the suffix of KVC_y structure have their relationship marked by i prosody, the exponence of which is closeness.

Examples:

i. VC-CV + KVC_y ⟶ VC-CV $\overset{i}{\text{----}}$ KVC_y

anla + yor anliyor 'he is understanding'

ii. CVC-CV + KVC_y ⟶ CVC-CV $\overset{i}{\text{----}}$ KVC_y

bekle + yor bekliyor 'he is waiting'

iii. CV-CV + KVC_y ⟶ CV-CV $\overset{i}{\text{----}}$ KVC_y

koru + yor koruyor

---

[1] See p. 123, footnote 1.

6.2.14. O Prosody

C final roots + the suffix K_y have their relationship marked by O prosody, which indicates that there is no phonetic exponent for the suffix. As K_y is always followed by another suffix this following suffix, in such cases, has its junction directly with the base.

Examples:

i. $CVS^{h}_{ş}$ + K_y + $P_t V$ ⟶ $CVS_{ş}$ (H, O) K_y P_t

boş + y + di ⟶ boştu 'it was empty'

ii. $CV-CVK^{h}_{l}$ + K_y + $^{h}_{m}NVC$ ⟶ $CV-CVK_{l}$ (H, O) K_y NVC_m

güzel + y + miş ⟶ güzelmiş 'it was said to be beautiful'

6.2.15. Summary of Root + Suffix Junction Prosodies

The various junction prosodies discussed above have contrasting functions at different types of junctions. The types of contrasting prosodies can be shown as follows according to the type of junction they mark.

J , N , S prosodies mark relation of : − V + V −

∅ , e , cc , O , H , H̲ prosodies mark relation of : − C + C −

H , H̲ prosodies mark relation of : − C + V −

F , i , H , H̲ prosodies mark the relation of : − V + C −

y/w , r/r̲ prosodies mark relation of all types of junctions, i.e. − V + V − , − C + C − , − C + V − , − V + C − , and they co-occur with any of the prosodies given above.

Within the different types of junction the specific prosodic relation of a suffix to a root is dependant on the type of root to which it is suffixed. Hence, a grammatically same suffix has different junction prosodies depending on the root final C and V systems and the prosodic character of the root ending. For example, the junction of 3. person possessive suffix $S_{s\imath}$ with a C final root is marked by $\emptyset$ prosody, e.g.

$$VC \overset{\emptyset}{\text{---}} S_{s\imath} \qquad \text{evi} \quad \text{'his home'}$$

but the junction of V final root + $S_{s\imath}$ is marked by H prosody, e.g.

$$CVCV \overset{H}{\text{---}} S_{s\imath} \qquad \text{babası} \quad \text{'his father'}$$

The suffix 'ci' of $P_{ç\imath}$ structure has H prosodic junction with $-C^{h}$ ending root, e.g.

$$CVP_{t} \overset{H}{\text{---}} P_{ç\imath} \qquad \text{sütçü} \quad \text{'milkman'}$$

but $\underline{H}$ prosodic junction with $-C^{\underline{h}}$ ending root, e.g.

$$CVN_{m} \overset{\underline{H}}{\text{---}} P_{ç\imath} \qquad \text{camcı} \quad \text{'glazier'}$$

6.3. Suffix + Suffix Junction Prosodies

The junction of suffix + suffixes, i.e. base + suffixes, have similar prosodies to those set up for root + suffix junctures. The only exception is the junction of the suffix $S_{s\imath}$ + case suffixes where an n prosody , the exponent of which is a consonant of the N group, is set up to mark the prosodic relation of the suffix + suffix juncture [1].

i.	CV − CV	+	S_{s}	+	α	$CV - CV \overset{H}{\text{---}} S_{s\imath} \overset{n}{\text{---}} \alpha$	
	baba	+	si	+	e	babasına	'to his father'

[1] cf. N prosody, 6.2.7 .

ii. VC + S_s + ɿ — $VC \overset{\emptyset}{\text{---}} S_s\text{ɿ} \overset{n}{\text{---}} \text{ɿ}$

ev + si + i — evini 'his house (obj.)'

iii. CVC + S_s + P_tVC — $CVC \overset{\emptyset}{\text{---}} S_s\text{ɿ} \overset{n}{\text{---}} P_t VC$

ev + si + den — evinden 'from his house'

CHAPTER SEVEN

Onomatopoeia and Reduplication

7.1. Onomatopoeia

Onomatopoeic words constitute a relatively small portion of the vocabulary, but exhibit phonetically and phonologically interesting features. As unsuffixed bases[1] they are used for direct imitation of various sounds, and by means of suffixation and reduplication[2] they function as nouns, adjectives, adverbs and verbs. They are more frequently used in reduplicated form.

In this chapter unsuffixed onomatopoeic bases are analysed. The characteristics of these are that, compared to non-onomatopoeic bases, the structures that can be set up for them and the subsystems of the C and V systems in these structures, especially in disyllabic bases are restricted.

When unsuffixed onomatopoeic bases are used in direct imitation of various sounds they have length as a phonetic feature of the final consonant, unless the final consonant is a plosive, when the preceding vowel is lengthened[3], e.g.

[fɤʃ:] fɪʂ 'a hissing or rustling sound'

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[1] No grammatical analysis has been made for onomatopoeic words in unsuffixed form, so they are referred to here as bases for convenience of description.

[2] See 7.2.

[3] See 7.1.1.1 for length established as a syllable prosody at the phonological level.

[ʧa̤:t] çat 'banging of a door'

[ʃanguu̥x:] ṣangɪr 'breaking of glass, etc'

7.1.1. Structure of Unsuffixed Onomatopoeic Bases

These, in the main, have the following structures:

Monosyllabic

CVC

CVCC

Disyllabic

CVC—CVC

CV—CVC

7.1.1.1. Prosodies

The y/w, r/r̲, h/h̲ prosodies which have been set up for root structures in Chapter Four are applicable to onomatopoeic bases,[1] except that α does not operate in y/r̲ structures and that the structures are usually r or r̲ throughout, there are very few examples to the contrary, e.g.

$^{r}C\imath-{}^{\underline{r}}C\alpha C$ yuvar 'in a round shape'

Prosodies will not therefore be shown in the examples except for h/h̲ which require to be marked to show the contrasts within the C subsystems.

A syllable prosody of length is set up for syllables of CVC structure functioning as the final syllable in unsuffixed forms. The exponents of this are:

i. Lengthening of the final consonant unless the subsystem for final C is P, e.g.

$^{L}C\imath s^{\underline{h}}_{\underline{s}}$ [ʤuuz:] ciz 'a sizzling noise, usually associated with a painful injection'

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[1] r prosody can operate with α in any syllable of an onomatopoeic base, not only the first, as in $^{\underline{r}}_{w}C\imath C\text{-}C\imath C\text{-}C\alpha C$ cumburlop 'a sudden dip in water', but such bases are very few, and have restricted usage.

$C\imath\overset{L}{-}C\imath K^{h}_{r}$ [xɤʃɯɤ:] hışır 'a rustling sound'

ii. Lengthening of the prefinal vowel when the final C is P, e.g.

$\overset{L}{C\alpha P^{h}_{t}}$ [pɐ:t] pat 'the noise of a heavy fall'

$C\imath P^{h}_{t}$ [cy:ʈ] kŭt 'bang'

7.1.1.2. V Systems

In monosyllabic structures the V system can be α or ɪ[1]. In disyllabic structures V systems can be:

α – ɪ

or

or ɪ – ɪ

ɪ – α [2]

7.1.1.3. C Systems

The subsystems which can be set up for the C systems in various structures of the onomatopoeic bases, with the possible terms for each subsystem, are given below. The phonetic exponents are as for roots, for which see Ch.4.

I. CVC Structure.

The following subsystems are set up for initial C.

i. P subsystem: There are four terms in this subsystem, p, t, k, ç, which operate in h/h prosodic onsets.

Examples :

$\overset{h}{P\alpha C}_{p}$ pof 'a soft explosion'

$\overset{h}{P\imath C}_{p}$ bum 'imitating an explosion'

$\overset{h}{P\imath C}_{t}$ tıs 'indicating silence'

$\overset{h}{P\alpha C}_{t}$ dan 'imitating a metallic banging noise'

---

[1] Phonetic exponents are as for roots, see p. 65.

[2] ɪ – α is restricted to CV–CVC structure.

$^{h}_{k}P_{\iota}C$ kü̈t 'bang'

$^{\underline{h}}_{k}P_{\iota}C$ gü̈m 'a heavy fall'

$^{h}_{ç}P_{\iota}C$ çıt 'crack'

$^{\underline{h}}_{ç}P_{\iota}C$ cup 'object falling into a liquid, usually water'

ii. S subsystem: There are two terms, ş and s . ş operates in h prosodic, and s in h̲ prosodic onsets.

Examples:

$^{h}_{ş}S_{\alpha}C$ şak 'clapping'

$^{\underline{h}}_{s}S_{\iota}C$ zıp 'jumping up and down'

iii. N subsystem : There is one term, m, which operates in h̲ prosodic onsets.

Example:

$^{\underline{h}}_{m}N_{\iota}C$ mır 'humming'

iv. K subsystem: There are four terms, f, h, l, r. f operates in h/h̲ prosodic onsets. h operates in h, and l and r in h̲ prosodic onsets.

Examples:

$^{h}_{f}K_{\alpha}C$ foş 'hollow'

$^{\underline{h}}_{f}K_{\iota}C$ vın 'noise of a flying bullet, arrow, etc'

$^{h}_{h}K_{\alpha}C$ hö̈t 'boo'

$\underline{h}_{K_1 \iota}C$ lüp 'gulp'

$\underline{h}_{K_r \alpha}C$ rap 'marching'

Subsystems for initial C can now be shown thus[1]:

$h/\underline{h}_{C_P}VC_4$

$h/\underline{h}_{C_S}VC_2$

$\underline{h}_{C_N}VC_1$

$h/\underline{h}_{C_K}VC_4$.

The following subsystems are set up for the final C system in CVC .

i. P subsystem: There are three terms in this subsystem, p, t, k, which operate in h prosodic endings.

Examples:

$C\alpha P^h_p$ hop 'jumping'

$C\iota P^h_t$ düt 'sound of a whistle'

$C\alpha P^h_k$ lök 'slump'

ii. S subsystem: There are two terms, ş and s. ş operates in h, and s in h/h prosodic endings.

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1. See p. 73 , footnote 1 .

$C_1S_{\underline{s}}^{h}$ kiş 'shoo'

$C_1S_{s}^{h}$ fıs 'whispering'

$C_1S_{s}^{\underline{h}}$ vız 'buzz'

iii. N subsystem: There are two terms, m, n, which operate in h prosodic endings.

Examples:

$C_1N_{m}^{\underline{h}}$ güm 'a heavy fall'

$C_1N_{n}^{\underline{h}}$ tın 'hollowness'

iv. K subsystem: There are two terms, f, r. f operates in h, and r in h prosodic endings.

Examples:

$C_1K_{f}^{h}$ püf 'blowing out, candles, etc'

$C\alpha K_{r}^{\underline{h}}$ hor 'snoring'

Subsystems for final C can now be shown as follows:

$CVC_{P_3}^{h}$

$CVC_{S_2}^{h/\underline{h}}$

$CVC_{N_2}^{\underline{h}}$

$CVC_{K_2}^{h/\underline{h}}$

II. CVCC Structure

The following subsystems are set up for initial C:

i. P subsystem: There are three terms in this subsystem, p, c, k. p and k operate in h prosodic onsets, ç operates in h prosodic onsets.

Examples:

$^{h}_{p}P_{ɪ}CC$ pɪrt 'bulging'

$^{h}_{k}P_{ɪ}CC$ kɪrt 'cutting'

$^{h}_{ç}P_{α}CC$ cart 'tearing, cloth, paper, etc'

ii. S subsystem: There is one term, s, which operates in h prosodic onsets.

Example:

$^{h}_{s}S_{ɪ}CC$ zɪnk 'jerk'

iii. K subsystem: There is one term, h, which operates in h prosodic onsets.

Example:

$^{h}_{h}K_{ɪ}CC$ hiṣt 'calling to attention or to keep quiet'

The subsystems for initial C can now be shown as follows:

$^{h/h}_{p}CVCC$
$_{s}$

$^{h}_{s}CVCC$

$^{h}_{K}CVCC$

The following subsystems are set up for final CC:

The ending of CVCC has no contrast of h/h prosodies, as it is phonetically voiceless it may be described as h prosodic. Three subsystems with one term each are set up for the first C of the cluster, viz. $S_{ʂ}$, N_{n} , K_{r} . A P/subsystem is set up for the second C, this has two terms, k and t .

Examples:

$C\alpha KP_{rt}$		
$C\alpha KP_{rt}^{h}$	hart	'biting fiercely'
$C\alpha NP_{nk}^{h}$	zonk	'throb'
$C\imath SP_{ʂt}^{h}$	hiṣt	'calling to attention or to keep quiet'

The possible combinations of CC can be summarized as follows:

- SP when the terms are: $-SP_{ʂt}$

- NP when the terms are: $-NP_{nk}$

- KP when the terms are: $-KP_{rt}$

III. CVC–CVC Structure

In CVC–CVC structure, with the exception of the initial C, all C systems are very restricted, and only certain subsystems can be set up in the context of others. The restricted subsystems function in y/w, r/r structures with h/h syllable onsets and endings, and are shown below with various examples.

a) $CVN^{h}\_\underline{h}PVK^{h}$

i. $CVN_{\alpha,n} - PVK_{r}$

Subsystems possible for initial C are:

$h_{P_{t,ç}} -$	$h_{S_{ş}} -$	$h_{K_{f,h}} -$
$\underline{h}_{P_{p}} -$	$\underline{h}_{S_{s}} -$	$\underline{h}_{K_{l}} -$

Examples:

$h_{P_{t}ıN_{n}-P_{k}ıK_{r}}$	tıngır	'metallic noise'
$h_{P_{ç}ıN_{n}-P_{k}ıK_{r}}$	çıngır	'ringing of bell,etc'
$\underline{h}_{P_{p}\alpha N_{n}-P_{k}ıK_{r}}$	bangır	'very loud shouting'
$h_{S_{ş}\alpha N_{n}-P_{k}ıK_{r}}$	şangır	'breaking of glass,etc'
$\underline{h}_{S_{s}\alpha N_{n}-P_{k}ıK_{r}}$	zangır	'strong trembling'
$h_{K_{f}ıN_{n}-P_{k}ıK_{r}}$	fingir	'in a swaying motion'
$h_{K_{h}ıN_{n}-P_{k}ıK_{r}}$	hüngür	'crying'
$\underline{h}_{K_{l}\alpha N_{n}-P_{k}ıK_{r}}$	langır	'movement of something bulky'

ii. $CV\underset{\imath m}{N} - P\underset{p\imath r}{VK}$

Subsystem possible for initial C is $\underline{^{h}P}_{k} -$

Example:

$\underline{^{h}P}_{k\imath}\underset{m}{N} - P_{p\imath}K_{r}$ gümbür 'thundering noise'

b) $CVK\underset{\alpha\imath l}{\underline{^{h}}} - \underline{^{h}}PVK\underline{^{h}}_{r}$

Subsystems possible for initial C are: $\underline{^{h}P}_{k} -$

$\underline{^{h}K}_{f,\underline{h}}$

Examples:

$\underline{^{h}P}_{k\imath}K_{l} - P_{t\imath}K_{r}$ güldür 'gush'

$\underline{^{h}K}_{f\imath}K_{l} - P_{t\imath}K_{r}$ fıldır 'rapid circling movement'

$\underline{^{h}K}_{h\alpha}K_{l} - P_{t\imath}K_{r}$ haldır 'rough behaviour'

IV. CV-CVC Structure

As in CVC-CVC structure, with the exception of the initial C, C systems are restricted in this structure, and not all permutations are possible. The systems operate in y/w, r/$\underline{r}$ structures with h/$\underline{h}$ syllable onsets and endings. The main grouping is done according to the subsystems set up for the final C, and further subdivision of each group is based on the subsystems that can be set up for the medial and initial C as illustrated below.

A. $CV_{\iota} - CVP^{h}_{\alpha,\iota k}$

a) $CV - {}^{h}_{\text{ç}}PVP$

i. PV – PVP

$^{h}_{p}P_{\iota} - P_{\text{ç}\iota}P_{k}$	bıcık	'stickiness, mostly in connection with jam, etc'

ii. KV – PVP

$^{h}_{f}K_{\iota} - P_{\text{ç}\iota}P_{k}$	vıcık	'stickiness, mostly in connection with oil, mud'

b) $CV - {}^{h}_{y}KVP$

i. PV – KVP

$^{h}_{\text{ç}}P_{\iota} - K_{y}\alpha P_{k}$	cıyak	'shrill voice'

ii. KV – KVP

$^{h}_{f}K_{\iota} - K_{y}\alpha P_{k}$	vıyak	'screaming of a baby'

B. $CV_{\alpha,\iota}\ CVK^{h}_{\alpha\iota l,r}$

1. $CV - CVK^{h}_{\iota l}$

a) CV – SVK

i. $NV - {}^{h}_{\text{ş}}SVK$

$^{h}_{m}N_{\iota} - S_{\text{ş}\iota}K_{l}$	mışıl	'sleeping deeply'

ii. KV – $\underset{s}{h/\underline{h}}$SVK

$h_{K_r\imath} - \underline{h}_{S_s\imath K_l}$	fısıl	'whispering'
$\underline{h}_{K_r\imath} - \underline{h}_{S_s\imath K_l}$	vızıl	'vibrating noise, e.g. buzzing'

b) CV – $\underline{h}_{m}$NVK

$h_{P_k\imath} - N_{m\imath K_l}$	kımıl	'continuous movements'

c) CV – $\underline{h}_{r}$KVK

i. PV – KVK

$h_{P_p\imath} - K_{r\imath K_l}$	pırıl	'shimmering'
$h_{P_t\imath} - K_{r\imath K_l}$	tiril	'thinness'
$\underline{h}_{P_k\imath} - K_{r\imath K_l}$	gürül	'noise of strong flow of water'

ii. SV – KVK

$\underline{h}_{S_s\imath} - K_{r\imath K_l}$	zırıl	'persistent, complaining voice'

iii. NV – KVK

$\underline{h}_{N_m\imath} - K_{r\imath K_l}$	mırıl	'mumbling'

iv. KV – KVK

$^{h}K_{r}\imath - K_{r}\imath K_{l}$	fırıl	'whirling'
$^{h}K_{h}\imath - K_{r}\imath K_{l}$	horul	'snort'

2. $CV - CVK^{h}_{\alpha,\imath r}$

a) CV – PVK

i. 1. $^{h}PV_{p,t,k,ç} - {}^{h}PVK_{p,t,k}$

$P_{k}\imath - P_{t}\imath K_{r}$	kıtır	'crunchy'

2. $^{h}PV_{p,k} - {}^{h}PVK_{ç}$

$P_{k}\imath - P_{c}\imath K_{r}$	gıcır	'squeaky'

ii. SV – PVK

$^{h}S_{ş}\imath - P_{k}\imath K_{r}$	şıkır	'noise of rainfall'

iii. KV – PVK

$^{h}K_{h}\alpha - {}^{h}P_{p}\imath K_{r}$	höpür	'drinking something noisily'
$^{h}K_{f}\alpha - {}^{h}P_{k}\imath K_{r}$	fakır	'boiling'
$^{h}K_{l}\alpha - {}^{h}P_{k}\imath K_{r}$	lakır	'swallow'

$^{h}_{l}K\alpha - {}^{h}_{p}P\imath K_{r}$ löpür 'eating noisily'

b) CV – SVK

i. PV – $^{h}_{s}$SVK

$^{h}_{ç}P\imath - S\imath K_{r}$ cızır 'sizzling'

ii. KV – SVK

1. ^{h}KV – ^{h}SVK

$^{h}_{f}K\imath - {}^{h}_{ş}S\imath K_{r}$ fışır 'bubbly'

$^{h}_{f}K\imath - {}^{h}_{s}S\imath K_{r}$ fısır 'swollen'

$^{h}_{h}K\alpha - {}^{h}_{ş}S\imath K_{r}$ haşır 'rustle'

2. ^{h}KV – $^{h}_{s}$SVK

$^{h}_{f}K\imath - {}^{h}_{s}S\imath K_{r}$ vızır 'swiftness'

c) CV – NVK

$^{h}_{h}K\alpha - {}^{h}_{m}N\imath K_{r}$ homur 'grumble'

d) CV – KVK

i. PV – KVK

1. $h_{PV} - h_{KVK}$

$h_{P_{p}^{\imath}} - h_{K_{f}^{\imath}K_{r}}$	püfür	'breezy'
$h_{P_{k}^{\imath}} - h_{K_{f}^{\imath}K_{r}}$	küfür	'coolness'

2. $\underline{h}_{PV} - \underline{h}_{KVK}$

$\underline{h}_{P_{\varsigma}^{\alpha}} - \underline{h}_{K_{y}^{\imath}K_{r}}$	cayir	'burning'

ii. KV – KVK

$\underline{h}_{K_{y}^{\imath}} - \underline{h}_{K_{f}^{\alpha}K_{r}}$	yuvar	'roundness'

7.1.1.4. Conclusions

In conclusion, as a result of the analysis of onomatopoeic bases, it is seen that they differ in several respects from bases that are not onomatopoeic, viz. in C systems, V systems and prosodies:

C systems

i. Apart from CVC, C systems operate in restricted permutations in the structures, and final C systems are very restricted.

ii. No N subsystems with the term n can be set up for initial or final C in any of the structures.

V systems

α does not operate in y/r prosodic structures.

Prosodies

With a very few exceptions the structures are r or r prosodic throughout.

7.1.1.5. Junction of Onomatopoeic Bases + Suffixes

Onomatopoeic bases have similar types of junction prosodies with suffixes that can be affixed to them as those which have been set up for noun, adjective and verb roots + suffixes.

Examples:

i.	$C\alpha C_{\imath}K_{l}^{h}$	+	$P_{t}\alpha$	$C\alpha C_{\imath}K_{l}^{\underline{H}}P_{t}\alpha$	
	horul	+	de	horulda	'breathe heavily'
ii.	$C_{\imath}C_{\imath}K_{l}^{h}$	+	$^{h}P_{t\imath}$ [1]	$C_{\imath}C_{\imath}K_{l}^{H}P_{t\imath}$	
	piril	+	ti	pırıltı	'shimmering light'
iii.	$C_{\imath}S_{ş}^{h}$	+	$^{h}K_{l}\alpha$	$C_{\imath}S_{ş}^{\underline{H}}K_{l}\alpha$	
	fış	+	le	fışla	'go fizzy'

[1] See p. 123, 5.2.5.2.A II b i .

7.2. Reduplication

Reduplication is the total or partial repetition of the syllabic structure of a given base with no intervening pause[1]. All onomatopoeic bases can be reduplicated as is the case with bases of most nouns, adjectives, adverbs and verbs.

Reduplication can be of the following types:

I. Simple reduplication

II. Complex reduplication

The two types are discussed in the sections below.

Type I – Simple Reduplication

In this type of reduplication the whole of a structure is repeated with no change in prosodies and C and V systems. Such reduplicatives function as adjectives or adverbs.

Examples:

kapı 'door' – reduplicated as: kapı kapı 'door to door'

yavaş 'slow' – reduplicated as: yavaş yavaş 'slowly'

fingir 'in a swaying motion' – reduplicated as: fingir fingir 'coquettish'

gıcır 'squeaky' – reduplicated as: gıcır gıcır 'brand new'

bol 'loose' – reduplicated as: bol bol 'ample'

Type II – Complex Reduplication

Complex reduplication is accomplished in various ways:

i. Where a structure is repeated with a change in the r/r̲ prosody

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[1] Prosodies and subsystems for C and V systems of the structures to be reduplicated, i.e. the base, are not given as these have already been discussed in the various sections on root structures and onomatopoeia.

which may or may not be accompanied by a change in the V systems. Such reduplicatives function as adjectives and adverbs.

Examples:

C initial

a) with change in V systems

kara 'black' $\overline{r}_{CaCa}$ — reduplicated as: kara kuru 'very dark and thin' $\overline{r}_{CaCa}\ r_{CıCı}$

gacır 'creaking' $\overline{r}_{CaCıC}$ — reduplicated as: gacır gucur 'creaking' $\overline{r}_{CaCıC}\ r_{CıCıC}$

b) without change in V systems

faşir 'rapid flow of water' $\overline{r}_{CaCıC}$ — reduplicated as: faşır foşur 'overflowing' $\overline{r}_{CaCıC}\ r_{CaCıC}$

V initial

In reduplicatives with V initial bases, the relationship of the base + reduplicated part is marked by P prosody, the exponent of which is a consonant of the B group when the exponent of the term in the subsystem set up for first C of the reduplicated part is voiced, and a consonant of the P group when the exponent of the said term is voiceless.

Examples:

eski 'old' $\overline{r}_{aC\text{-}Cı}$ — reduplicated as: eski püskü 'tattered' $\overline{r}_{aC\text{-}Cı}\ \overset{P}{\text{----}}\ r_{ı}S^{h}_{s}\text{-}Cı$

ezik 'crushed' $\overline{r}_{a\text{-}CıC}$ — reduplicated as: ezik büzük 'dented' $\overline{r}_{a\text{-}CıC}\ \overset{P}{\text{-------}}\ r_{ı}\text{-}\overline{S}^{h}_{s}{}_{ıC}$

ii. Where the whole or a part of a structure is repeated with no change of prosody. This is possible in two ways:

a) A structure is repeated with the exception of the first C in C initial bases, and the base and the reduplicated part have their relationship marked by M prosody, the exponents of which are consonants of the M group. C initial bases where an N subsystem with the term m has been set up for C cannot be reduplicated in this way, e.g. muz, 'banana', $\overset{h}{\underset{m}{N}}\iota C$. In such cases the word falan 'etc' can be used instead of the reduplicated base to give the same meaning, e.g. muz falan, 'banana and the like'.

Reduplicatives formed in this way function as nouns or adjectives.

Examples:

zengin 'rich' CαCCιC — reduplicated as: zengin mengin 'rich and so on'

$$C\alpha CC\iota C \overset{M}{\text{----}} \alpha CC\iota C$$

güzel 'beautiful' CιCαC — reduplicated as: güzel müzel 'beautiful and so on'

$$C\iota C\alpha C \overset{M}{\text{----}} \iota C\alpha C$$

sarı 'yellow' CαCι — reduplicated as: sarı mari 'yellow and the like'

$$C\alpha C \quad \overset{M}{} \quad \alpha C\iota$$

V initial

az 'little' αC — reduplicated as: az maz 'little and so on'

$$\alpha C \overset{M}{\text{----}} \alpha C$$

oda 'room' αCα — reduplicated as: oda moda 'room and the like'

$$\alpha C\alpha \overset{M}{\text{----}} \alpha C\alpha$$

uzun 'long' ιCιC — reduplicated as: uzun muzun 'long and so on'

$$\iota C\iota C \overset{M}{\text{----}} C\iota C$$

b) Where the initial (C)V is reduplicated and is followed by the base. The reduplicated part and the base have different prosodic links according to whether the base is C initial or V initial. The reduplicatives formed in this way function as adjectives or adverbs.

C initial

An x prosody is set up for the junction of the reduplicated part and the C initial base, the exponents of which are consonants of the P, M, S or R groups. It does not seem possible to give rules to show which prosodic link will occur between a reduplicated part and a base, but each base has one of the prosodic links obligatorily.

Examples:

yeni 'new' CαCɪ — reduplicated as: yepyeni 'brand new'

$C\alpha \overset{x}{\text{---}} C\alpha C\imath$ (exponent of x-[p])

mor 'purple' CαC — reduplicated as: mosmor 'black and blue'

$C\alpha \overset{x}{\text{---}} C\alpha C$ (exponent of x-[s])

boş 'empty' CαC — reduplicated as: bomboş 'completely empty'

$C\alpha \overset{x}{\text{---}} C\alpha C$ (exponent of x-[m])

temiz 'clean' CαC C — reduplicated as: tertemiz 'spotless'

$C\alpha \overset{x}{\text{---}} C\alpha C\imath C$ (exponent of x-[x])

V initial

A p prosody is set up for the junction of the reduplicated part and a V initial base, the exponent of which is a consonant of the P group.

Examples:

açɪk 'open' αCɪC – reduplicated as: apaçɪk 'wide open'

$$\overset{p}{\alpha}\text{----}\alpha C\imath C$$

ɪslak 'wet' ɪCCαC – reduplicated as: ɪpɪslak 'very wet'

$$\overset{p}{\imath}\text{----}\imath CC\alpha C$$

acɪ 'bitter' αCɪ – reduplicated as: apacɪ 'very bitter'

$$\overset{p}{\alpha}\text{----}\alpha C\imath$$

Some bases can be reduplicated in a number of ways. For example, kara 'black' can be reduplicated as:

1. kara kara – Type I
2. kara kuru – Type II i a
3. kara mara – Type II ii a
4. kapkara – Type II ii b

Reduplicatives have similar types of junction with various suffixes as non-reduplicated bases.

CHAPTER EIGHT

Some Aspects of Discourse Harmony

8.1. Introduction

Intra-word harmony has already been discussed, and junction prosodies have been set up for the junction of base + suffix in a slow style of speech[1]. In the following sections some aspects of discourse harmony in a quick style of speech are examined, and prosodies are set up for the different types of harmony to show some possible prosodic links between words. Harmonizing features that occur within words, but only in quick speech are also examined.

The analysis is based on phonic data recorded over a period of time and observations made during conversations between speakers of Istanbul Turkish. Only features that occur regularly in speech have been taken into account, and a sample of contexts is given to illustrate these features. Where certain features occur only in specific contexts this has been noted. Some of the prosodies set up for base + suffix junctions in Chapter 6 are also relevant for word + word junctions.

This analysis is not claimed to be exhaustive and it is possible that further types of harmony could be found if a full study of discourse were to be made.

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[1] See 2.8 , and Chapter 6, pp. 128-148.

8.2. Inter-word and Intra-word Junction Prosodies

8.2.1. y Prosody

y prosody is set up to show front harmony between words. When a word with w prosodic ending is followed by a V initial word with y prosodic onset, the junction is y prosodic. The exponent of y prosodic junction is frontness of the last one or two syllables of the preceding word when the inter-word junction is —V + V— , and syllabification[1] and a palatalized articulation for the final consonant of the preceding word when the junction is —C + V—. Examples:

—V + V— junction:

Londraya ilk defa geçen sene geldim.[2]

[lo̤ndɹɐja̤ i̤lc] [lo̤ndɹɛji̤ i̤lc]

—V+V— —V $\overset{y}{+}$ V—

' I came to London for the first time last year.'

ii. —C + V— junction

Kovan içinde arılar var.

[kovɐn iʧiɲdɛ] [kovɐ ɲiʧiɲdɛ]

—$C^{w}+^{y}$V— —C $\overset{y}{+}$ V—

' There are bees in the hive.'

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[1] For syllabification at inter-word junction see 8.2.6. Only the junction prosody under discussion is marked in the examples in each section.

[2] Words whose junction is examined are underlined in each sentence. The phonetic transcriptions on the left are for slow style, and those on the right for quick style.

8.2.2. w Prosody

w prosody is set up to show back harmony between words. When a word with y prosodic ending is followed by a V initial word with w prosodic onset, the junction is w prosodic. The exponent of y prosodic junction is backness of the last syllable of the preceding word where the inter-word junction is $-V + V-$, and syllabification and a non-palatal articulation for the final consonant of the preceding word where the junction is $-C + V-$.

Examples:

i. $-V + V-$ junction

Ne arıyorsun?

[nɛ ɐrɣjoɹsun] [nɐ ɐrɣjosun]

$--V^{y}+^{w}V--$ $--V\overset{w}{+}V--$

'What are you looking for?'

ii. $-C + V-$ junction

İlk anda farkında olmadım.

[i̯lc ɐndɐ] [i̯l kɐndɐ]

$-C^{y}+^{w}V-$ $--C\overset{w}{+}V--$

'At first I did not realise it.'

8.2.3. r Prosody

r prosody is set up to mark rounding harmony between

words. When a word with r prosodic ending is followed by a word with r prosodic onset whose second syllable is r prosodic, i.e. r + r − r, the junction is r prosodic. The exponent of r prosodic junction is rounding of the first syllable of the following word. Examples:

i. Dün çarşıdan üç kilo elma aldım.

[ɣʏʧ cilɟɔ] [ɣʏʧ cylɟɔ]

$^{r}VC + {}^{r}CV-{}^{r}CV$ $VC^{\overset{r}{-}}+CV\text{-}CV$

'Yesterday I bought three kilogrammes of apples from the market.'

ii. O bavul kimin?

[ɔ bɐvuɫ] [ɔ bɔvuɫ]

$^{r}V + {}^{r}CV-{}^{r}CVC$ $V^{\overset{r}{-}}+CV\text{-}CVC$

'Whose suitcase is that?'

8.2.4. r Prosody

r prosody is set up to mark non-rounding harmony between words. Where a word with r prosodic ending, in which the last V is ɤ, is followed by a word with r prosodic onset, the junction is r prosodic. The exponent of r prosodic junction is non-rounding of the final syllable of the preceding word.

Examples:

i. Uzun uzun ne bakıyorsun diye <u>sordum kızdı</u>.

[sordum kuzdu] [sordum kuzdu]

$-\overset{r}{C}_1C + \overset{r}{C}_1C-$ $-C_1C \overset{r}{+} C_1C-$

' I asked him why he was staring and he got angry'

ii. <u>Suyu ısıtmak</u> iş değil.

[suju ɣsutmək] [sujɣ ɣsutmək]

$-\overset{r}{C}_1 + \overset{r}{}_1-CVC-$ $-C_1 \overset{r}{+} {}_1-CVC-$

'It is no bother to boil the water.'

8.2.5. I Prosody

I prosody is set up to mark close harmony between words where the inter-word junction is of the following types:

a) $-V_1 + (C)V_\alpha-$

Example:

<u>Anadoluyu karış</u> karış gezmişlerdir.

[anədɔluju kərɣʃ] [anədɔlujɣ kɣrɣʃ]

$-V_1 + CV_\alpha-$ $-V_1 \overset{I}{+} CV_\alpha-$

' They have been I suppose all over Anatolia.'

In this example I prosody is accompanied by r prosody, for which see 8.2.4 .

b) $-V_{\alpha} + (C)V_{\imath}-$

Example:

Kahve ister misin?

[kɯxyɛ iʂtæɤmiʂiɲ] [kɯxyi iʂtæɤmiʂiɲ]

$-V_{\alpha} + V_{\imath}-$ $-\overset{I}{V_{\alpha}} + V_{\imath}-$

'Do you want coffee?'

The exponent of I prosody is closeness in vowel quality in the syllable with α.

8.2.6. s Prosody

s prosody is set up to mark the junction of − C final + V initial words, and the exponent of this prosody is syllabification. Example:

Yeşil iplikle dikersen görünmez.

C̈V-CVC + VC-CVC-CV CV-CV-$\overset{s}{C}$+VC-CVC

' If you sew with green thread , it won't be seen .'

8.2.7. v Prosody

v prosody is set up to mark voiceless harmony at intra-word or inter-word $-S_{s}^{h} + {}^{h}S_{s}-$ junctions, and the exponent is voicelessness.

Examples:

Inter-word

Hava biraz sıcak ama zarar yok.

[ḫirɐz sɤʤak] [ḫirɐs sɤʤak]

$— S_{s}^{\underline{h}} + {}^{h}S_{s} —$ $— S_{s}^{\underline{v}} S_{s} —$

' The weather is rather hot, but it does not matter.'

Intra-word

Yemekler hep tuzsuz.

[tuzsuz] [tussuz]

$CVS_{s}^{\underline{h}} + {}^{h}SVC$ $CVS_{s}^{\underline{v}} SVC$

' The meals are all unsalted.'

8.2.8. v Prosody

v prosody is set up to mark voicing harmony at $— P_{ptç}^{\underline{h}} + V —$ inter-word junctions. There is also syllabification at such junctures. Examples:

i. Et ve soğan bir kap içinde pişirilir.

[kɐp itʃinʤɛ] [kɐbitʃinʤɛ]

$CVP_{p}^{\underline{h}} + V —$ $CV — P^{\underline{v}} + V —$

'Meat and onions are cooked in one saucepan.'

ii. Senin gibi genç adamlar hep asker.

[ʃɛntʃ ɐdɐmlaɤ] [ʃɛn ʤadɐmlaɤ]

$CVCP_{ç}^{\underline{h}} + V —$ $CVC — P_{ç}^{\underline{v}} + V —$

'Young men like you are all soldiers.'

8.2.9. Ɣ Prosody

Ɣ prosody is set up to mark the absence of a phonetic exponent for final $-C_{K_r}$ in the word 'bir' and suffix 'yor' at the types of junction given below:

a) bir

At $-C_{K_r}+C-$ or $-C_{K_r}+V-$ inter-word junctions.

Example:

Bir iş istiyorum ama yok.

[bɨɾ iʃ]
$CVK_r + VC$

[bi iʃ]
$CVK_r^{Ɣ} + VC$

'I want a job but there is none.'

b) yor

i. At $-C_{K_r}+C-$ or $-C_{K_r}+V-$ inter-word junctions.

Example:

Onlar bize geliyor diye biz onlara gidiyoruz.

[ɟɛlijoɾ dijɛ]
$-CVK_r + C-$

[ɟɛlijo dijɛ]
$-CVK_r^{Ɣ} + C-$

'As they come to(see) us we go to(see) them.'

ii. At $-C_{K_r}+C-$ intra-word junctions.

Example:

Her yemekte tatlı yiyorlar.

[jijoɾlaɾ]
$CV-CVK_r+CVC$

[jijolaɾ]
$CV-CVK_r^{Ɣ}+CVC$

'They have desert at each meal.'

8.2.10. ∤ Prosody

∤ prosody is set up to mark the inter-word junction of C and V final words + the post-position 'ile', which has the structure V—CV. The exponent of ∤ prosody is the absence of a phonetic exponent for the initial V in V-CV at — C + V-CV junction, and [j] at — V + V-CV junction. ∤ prosody is accompanied by y/w prosodies. Examples:

i. — C + V-CV

Hangi kaşık ile taksim ediyorsun ?

[kɑʃuk ilʲɛ] [kɑʃukɫɑ]

— C + V-CV — C ∤ + V-CV

'With which spoon are you serving ?'

ii. — V + V-CV

Su kesilince teneke ile çeşmeden taşırız.

[tɛnɛcɛ ilʲɛ] [tɛnɛcɛjlʲɛ]

— V + V-CV — V ∤ + V-CV

'When the water (supply) is cut, we carry (the water) from the fountain with tins (large tin containers) .'

8.2.11. = Prosody

= prosody is set up to mark the sameness of articulation at the following — N + $C_{\overline{P,K}}$ inter-word and/or intra-word junctions.

a) $-N_n + P_p-$ inter-word and intra-word junctions

The exponent of = prosody at such junctions is sameness of articulation as for P_p over both N and P, i.e. bilabial articulation.

Example:

Bütün bu işlerden o sorumlu.

[bytyɲ bu] [bytym bu]

$-N_n + P_p-$ $-N_n \overset{=}{+} P_p-$

'He is responsible for all these things.'

b) $-N_n + K_l-$ intra-word junctions

The exponent of = prosody at such junctions is sameness of articulation as for N_n over both N and K, i.e. denti-alveolar nasal articulation.

Example:

Daha ben canlı timsah görmedim.

[ʤanɫɣ] [ʤannɣ]

$-N_n + K_l-$ $-N_n \overset{=}{+} K_l-$

'I have not yet seen a live crocodile.'

APPENDIX I

APPENDIX I

Instrumental Findings

I. In the preparation of the instrumental findings included in this thesis the following technique and instruments were used:

i. Palatography

ii. Sonagraph (sound spectograph)

iii. Mingograph

I.1. Palatography

The technique of palatography, its types, their range of application and the necessary terminological explanations have been fully described in the following articles:

a) J.R.Firth, 'Word palatograms and Articulation', BSOAS, Vol.XII, 3 and 4, 1948, pp. 857 – 864.

b) J.R.Firth and H.J.F.Adam, 'Improved Techniques in palatography and kymography', BSOAS, Vol.XIII, 3, 1950, pp. 771 – 774.

It is not therefore necessary to describe palatography here. Direct palatography was not used as the above method was found to be adequate.

I.1.1. Discussion on the Palatograms

Eighteen word palatograms have been included in this thesis which provide instrumental evidence for the description of front versus back articulation of some of the consonants. A transparent palatogram figure has been provided and kept in the inside of the back cover with the help of which each palatogram

can be studied and compared with others. The black areas show where contact was made during the articulation of the words. Zones are named as illustrated in Table I in Firth's article 'Word Palatograms and Articulation.'

1. [e̤c] ek 2. [e̤k] ak

In [e̤c] there is wide contact for [c] extending from the back to 3rd molar line, and left and right to the canine line. By contrast in [e̤k] there is very little contact for [k] : there is a thin wipe across the palate behind the 4th molar line and a partial wipe in the left and right post-palatal zone.

3. [y̤s] ṳ̈s 4. [ṳs] us

In [ys] the contact is wider than in [us] both left and right, and in [ys] the contact extends to the incisor line on the left and to the lateral incisor line on the right. In [us] the contact does not reach the incisor line on the left, and does not reach beyond the right alveolar zone.

5. [ɛʃ] eʂ 6. [a̟ʃ] aʂ

In [ɛʃ] the contact extends beyond the canine line half-way into the alveolar zone. In [a̟ʃ] the contact just reaches the canine line in the right post-alveolar zone.

7. [i̤ʒ] iz 8. [e̤z] az

The contact is wider in [i̤ʒ] in contrast to [e̤z]. In both the contact is wide in the left alveolar zone, but in [i̤ʒ] in the left and right post-alveolar zone.

9. [æ̣ɻ] er 10. [aɹ] ar

In [æ̣ɹ] a narrow contact extends towards the canine line into the left and right post-alveolar zone, and there is also a slight contact in the left zone of the post-alveolar zone.

11. [ɧɛɻɛ] bere 12. [ʊrʊ] ara

In [ɧɛɻɛ] a narrow contact extends beyond the canine line and half-way into the alveolar zone. In [ʊrʊ] the contact extends to just beyond the 1st molar line into the left and right post-alveolar zone. Compared to [æ̣ɻ] and [aɹ] the contact in [ɧɛɻɛ] and [ʊrʊ] is firmer due to the repeated striking action of the tongue.

13. [ɛl̻] el 14. [ɑɬ] al

In [ɛl̻] the contact extends from beyond the 4th molar line on the left and on the right to just beyond the incisor line, and into the left and right zones of the post-alveolar zone, and also a soft contact can be seen in the left and right zones of the dental and denti-alveolar zone. In [ɑɬ] there is almost no contact beyond the 2nd molar line. The contact starts half-way in the left and right prepalatal zones, and extends to the incisor line, covering left and right zones of the dental and denti-alveolar zones.

15. [ɛ̃n̻] en 16. [ɐ̃n] an

In [ɛ̃n̻] the contact is wider than in [ɐ̃n], and extends from the incisor line to beyond the 4th molar line, on the left and on the right, and also from the left and right zones of the dental zone partially into left zone of the pre-palatal zone, and half-way into the right zone of the post-alveolar zone.

In [n̄] the contact extends to just beyond the 3rd molar line into left and right post-palatal zones, and only very slightly into the left zone of the post-alveolar zone.

17. [ʒẽɲʧ] genç 18. [dɑ̃ns] dans

Unlike [dɑ̃ns], in [ʒẽɲʧ] there is contact in the left and right post-palatal zones which extends slightly into the left zone of the mid-palatal zone, though the contact there is not so firm. Contact is also wider in all other places in the articulation of [ʒẽɲʧ] compared to [dɑ̃ns], except for a small area in the left and right zones of the dental and denti-alveolar zones. The same area shows a firm wipe in [dɑ̃ns] as there is dental contact for [d].

1.2. Sonagraph (sound spectrograph)

This is an electro-mechanical device for displaying energy content over the sound spectrum between 85 to 8000 Hz.

A sheet of chemically treated paper is mounted on a rotating drum which is, in turn, keyed to an oxide coated disc so that they rotate together. Sound is recorded on the edge of this disc in much the same way as on the tape of a tape recorder. This recorded sound is then fed through the electronics of the machine in a series of constant repetitions – rather like a tape loop – and a burning stylus is made to travel upwards across the paper on the drum, by a lead screw, so that each revolution of the drum finds the stylus one thread on the lead screw higher on the paper. As a varying D.C.voltage dependent in intensity on the energy content of the example is fed to this stylus, a burning of the paper takes place where there is energy, the blank portions

Cont.

representing no energy. Frequency is displayed in the vertical plane, duration in the horizontal, and the varying intensity of the burnt trace — in terms of light and dark — the energy content. Frequency and duration can be measured with the aid of a transparent calibration grid.

I.2.1. Discussion on the Spectrograms

Eleven spectrograms are included in this thesis for the discussion of voice, voicelessness and devoicing (i.e.h/h̲) features. The presence of regular wave forms on the voice bar at the lower end of the frequency scale suggests voicing, and the absence of regular wave forms on the voice bar indicates voicelessness. Where the regular wave forms show a fading away at the end of various utterances, this suggests devoicing.

No regular wave forms are traced in Specs. 2, 3, 4, 6 at places corresponding to [s̬] in 2, [ç] and [ʧ] in 3, [x] in 4, and [k] in 6, which support the description of these sounds as voiceless.

The regular wave forms on the voice bar, at places corresponding to [z̬] in 1, [m] in 4, [j] in 5, [ɹ] in 6, and [ɬ] in 7 tend to fade away towards the end of the utterance. This shows that there is some devoicing in the articulation of these consonants in final positions.

Spectograms 8 and 10 show that though the words sap and dip have been analysed as h ending and h̲ ending respectively, i.e. $-\,p_{p}^{h}$ and $-\,p_{p}^{\underline{h}}$, they are phonetically the same, i.e. both voiceless, in final position.

Spec. 9 [sɐpɤ] shows that the exponent of – p_p^h is still voiceless when followed by a vowel, but Spec. 11 [ɖiḫi] shows that the exponent of – p_p^h is voiced when followed by a vowel.

In Spec. 6 at the place corresponding to [ɹ], there is evidence of high intensity high in the frequency spectrum and this suggests there is friction at this point.

As mentioned earlier[1], in Spec. 5 [x_+^uj] the stretch on the voice bar at the place corresponding to [x] looks like voicing, but this seems to be due to breathy onset + close lip rounding rather than voicing.

I.3. Mingograph

The mingograph is a writing machine to which the electro-aerometer described below is connected. It provides a moving graphed paper, over which is mounted a number of ink galvanometers. These are thin glass jets suspended in the magnetic field of the galvanometer so that fluctuations of this field, influenced by the energy content of the utterance, cause these jets to pivot in an arc, about a mean zero line. Ink is forced through these jets under high pressure and this results in a stream of ink being deposited on the moving paper, writing the information contained in the utterance for immediate visual interpretation.

The Electro-Aerometer (marked by N and M on the traces)

The instrument allows the display of volumes of air from the nose and mouth simultaneously. It consists of a face mask,

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[1] See 2.5.1.6.

which covers the front of the face completely, a foam rubber rim sealing the face from leakage of air, and a rubber seal to isolate the nose and mouth into two seperate channels. The expelled air passes through rubber valves which, dependent on the volume, open up progressively to allow a beam of light from a lamp fitted on each individual valve to react on a photo electric cell. The degree of light intensity is converted by the electronics of the device into varying D.C. currents, which actuate the mingograph to produce peaks and curves of varying height, the higher peaks showing more air content. Voicing and nasality are superimposed on the trace, so that segmenting is relatively simple.

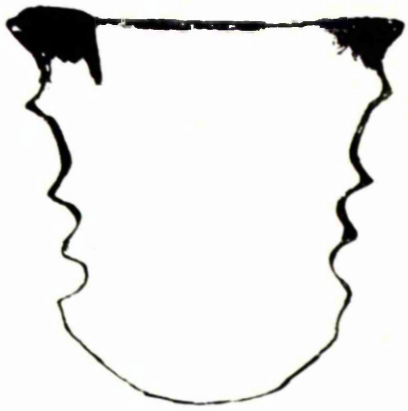
I.3.1. Discussion on Mingograms

Six mingograms are included in this thesis to show the contexts where vowels are nasalized.

Transcriptions have been given on the mingograms indicating places corresponding to each sound. Thus it can be observed that nasal tracing has registered nasality at places corresponding to vowel articulations marked with [˜] which confirm the perceptual description of such vowels as nasalized, i.e. that a vowel is nasalized where it is initial and followed by a nasal, or where it occurs between two nasals, or precedes a nasal which is followed by a stop, or a sibilant, or [j].

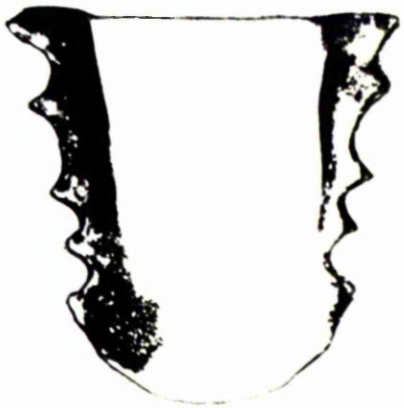
In Mingo. 5 [cỹjɛ] there is no reduced amplitude on the larynx tracing to correspond to the articulation of a nasal consonant, which indicates lack of contact for the nasal as described in 2.3.

1. [ẹc]



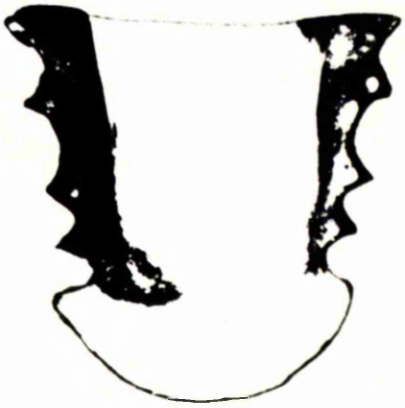
2. [ɐk]

3. [ẏʂ]



4. [u̥s]

5. [ɛʃ]



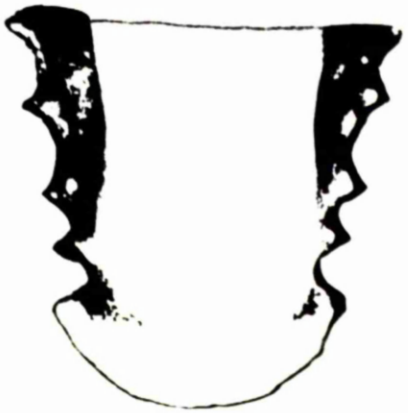
6. [a̟ʃ]

7. [i:ʒ]

8. [e:z]

9. [æ:ɻ]

10. [aɹ]



11. [bɛ:ɜɛ]

12. [ɐɾɐ]

13. [ɛl̩]

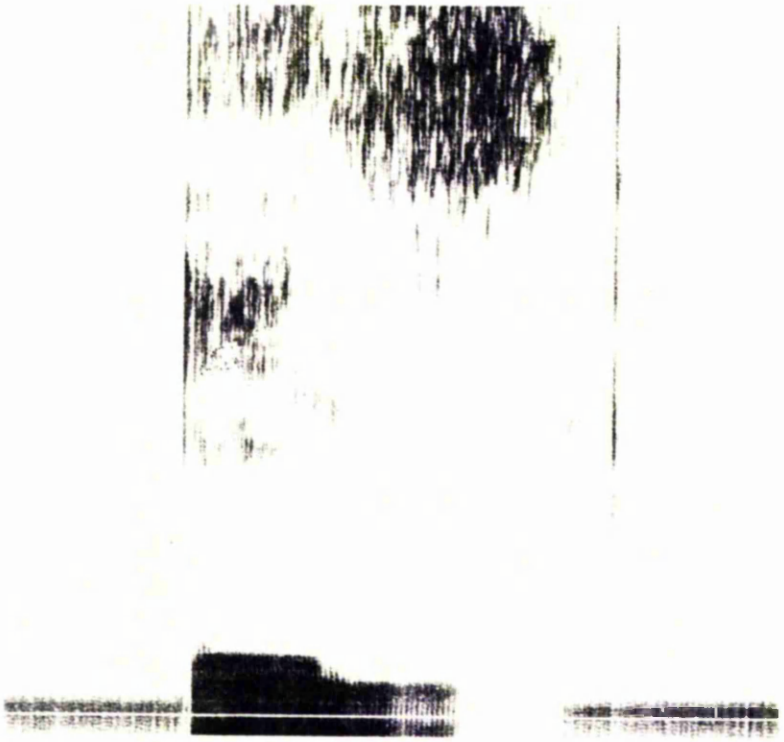
14. [at]

15. [ɛ̃n̩]

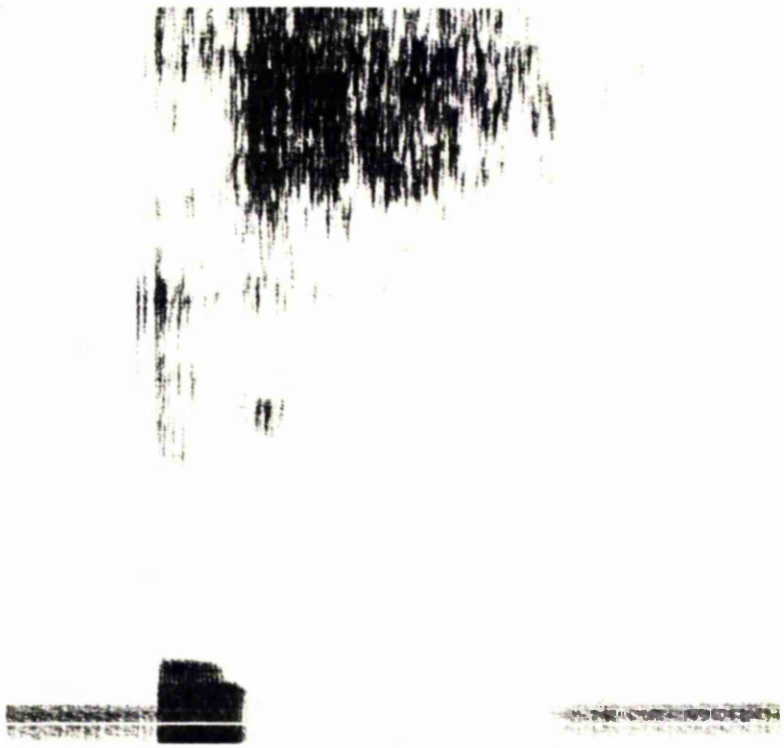
16. [ɛ̃n]

17. [ʃɛ̃n,tʃ]

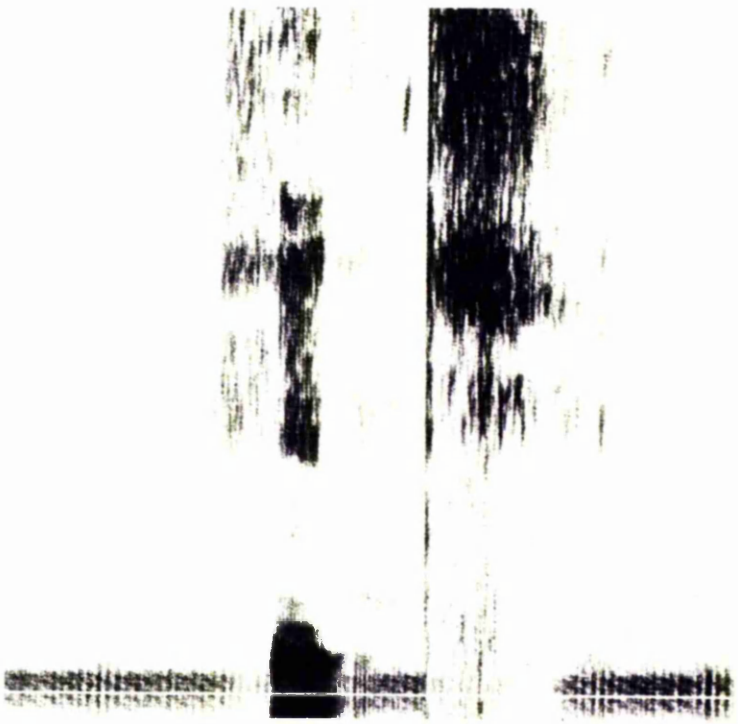
18. [dɛ̃ns]



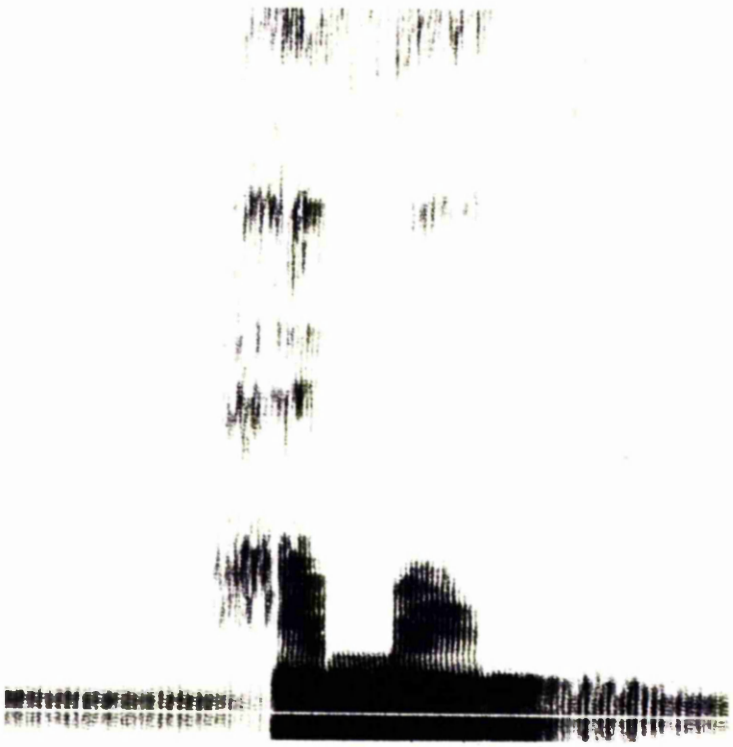
1. [iz]



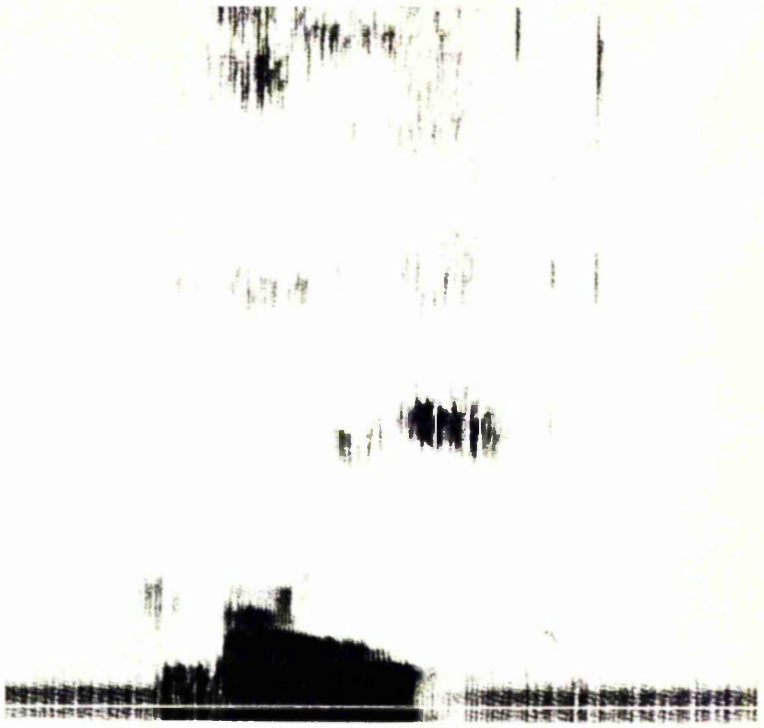
2. [iʒ]



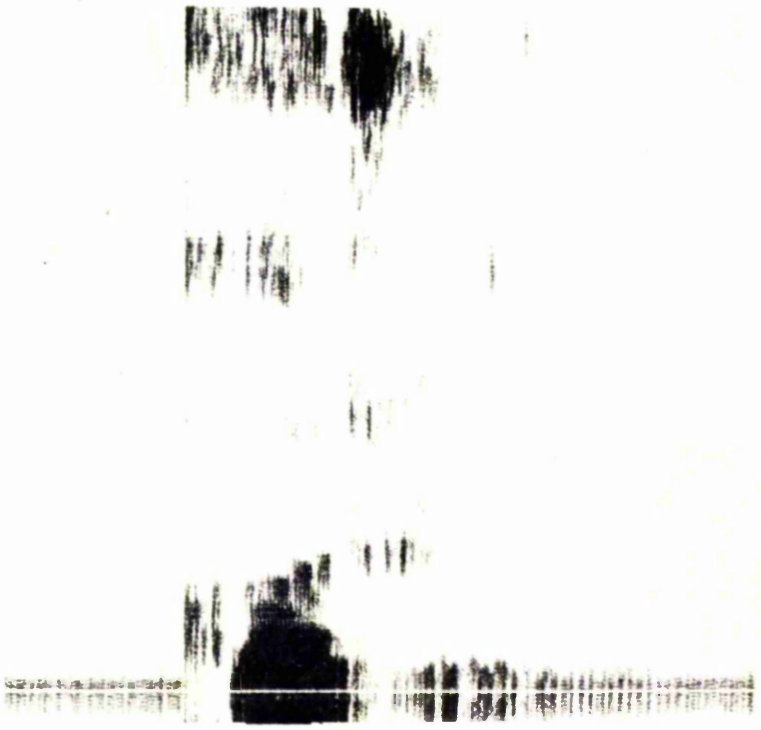
3. [ʃiːç]



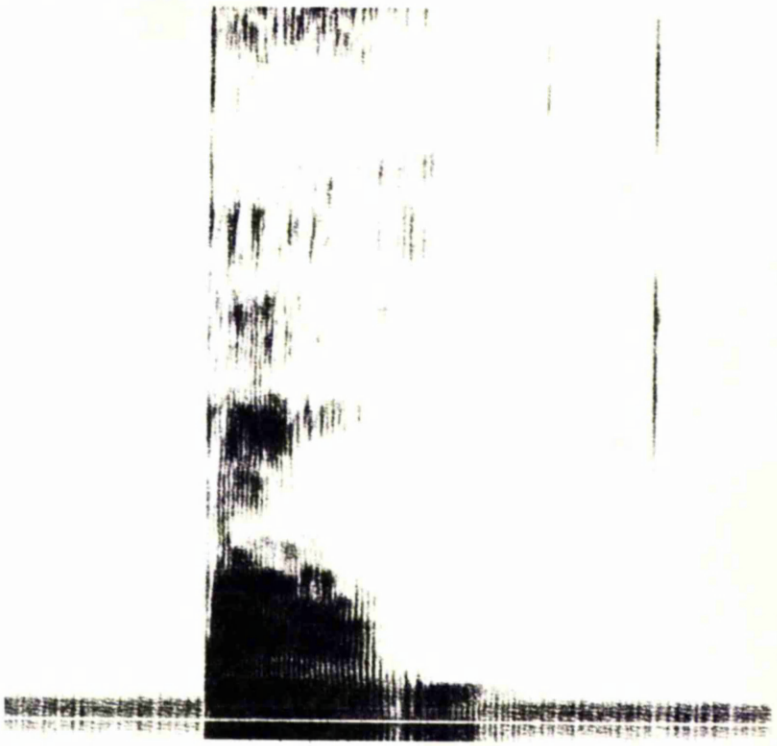
4. [xɛmɛm]



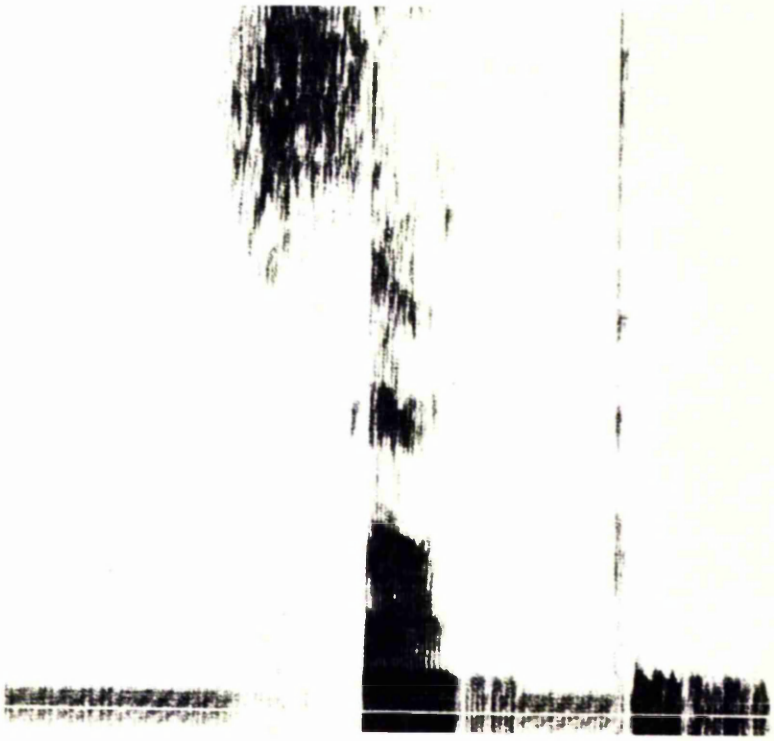
5. [xu̯j]



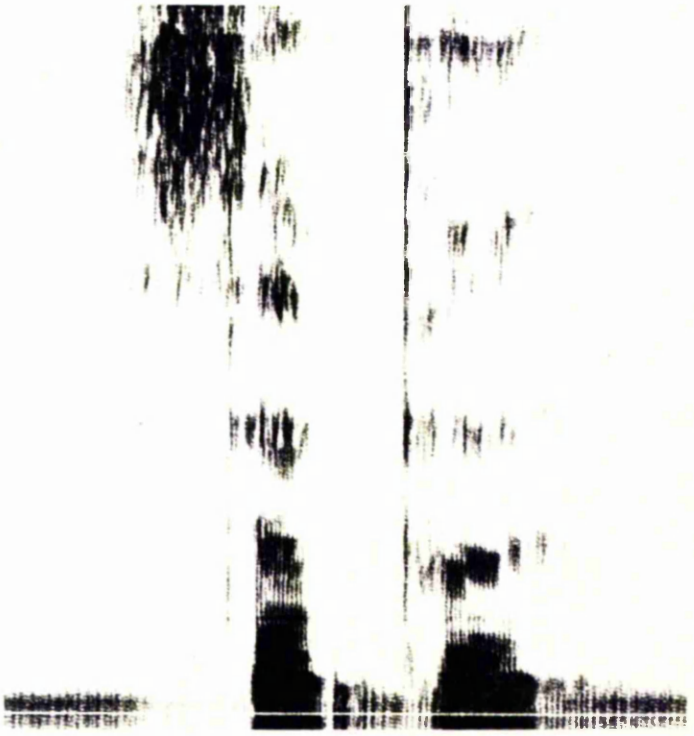
6. [kuɹ]



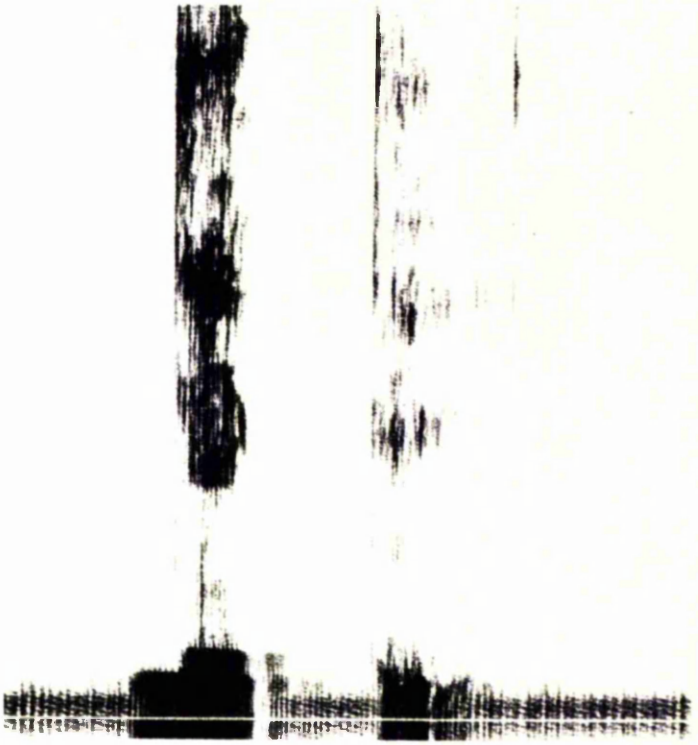
7. [bat]



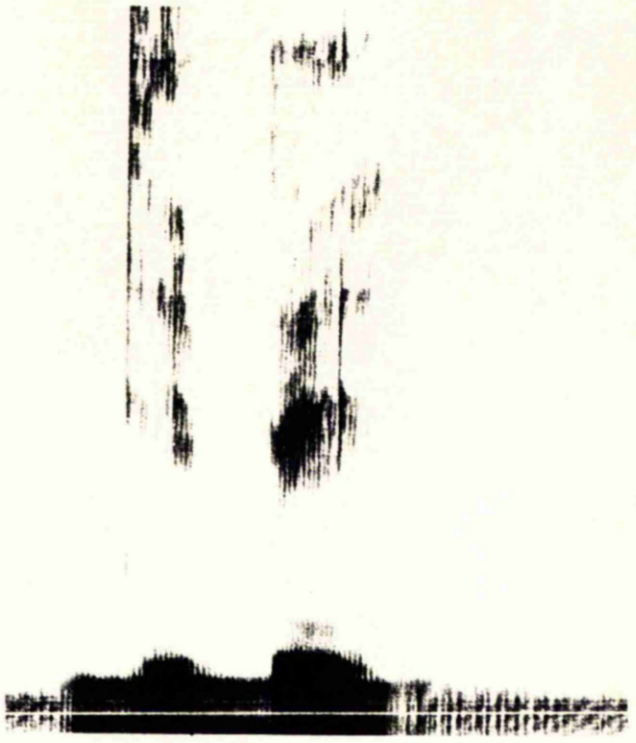
8. [spp]



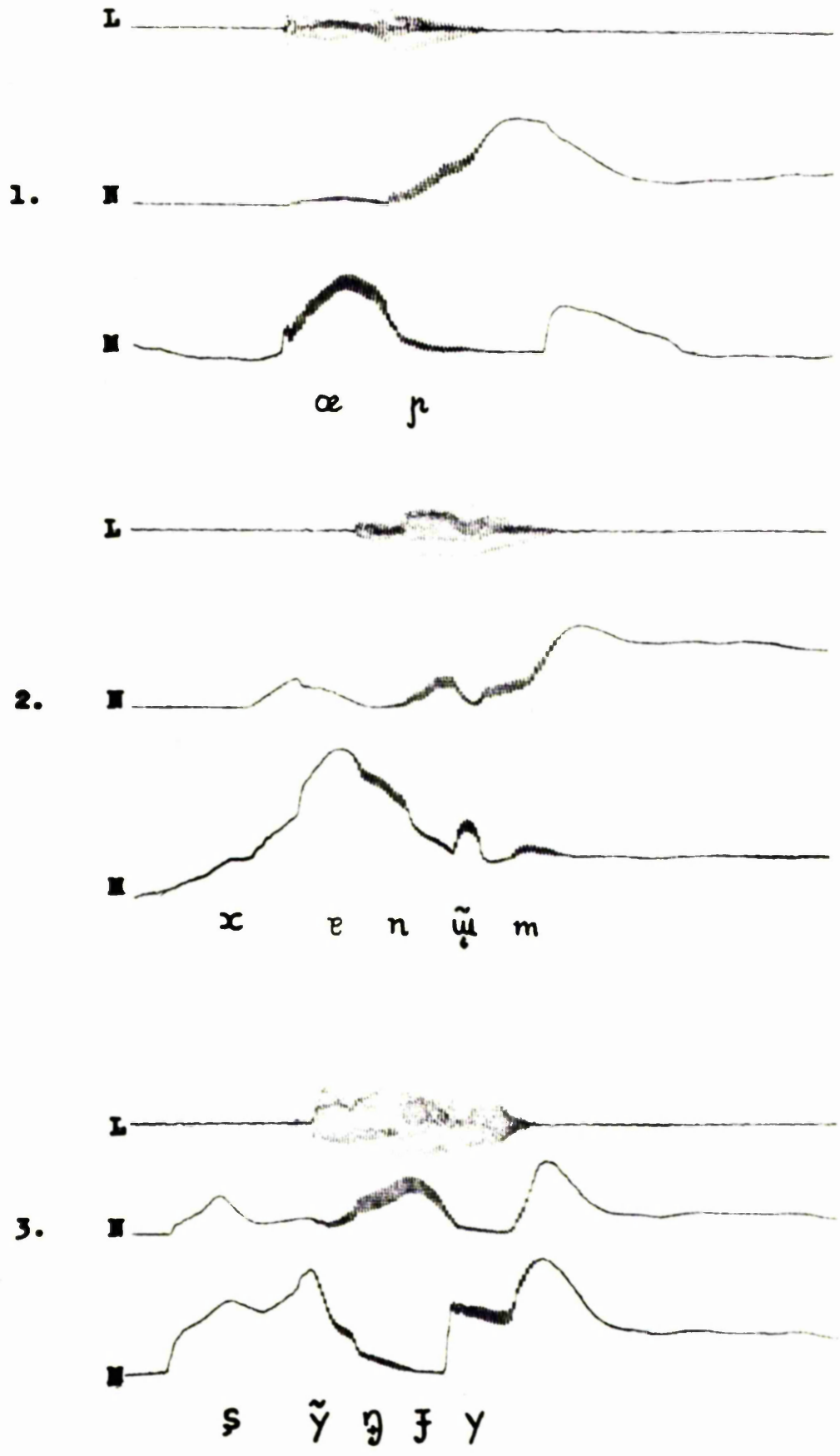
9. [sɛpʊ]

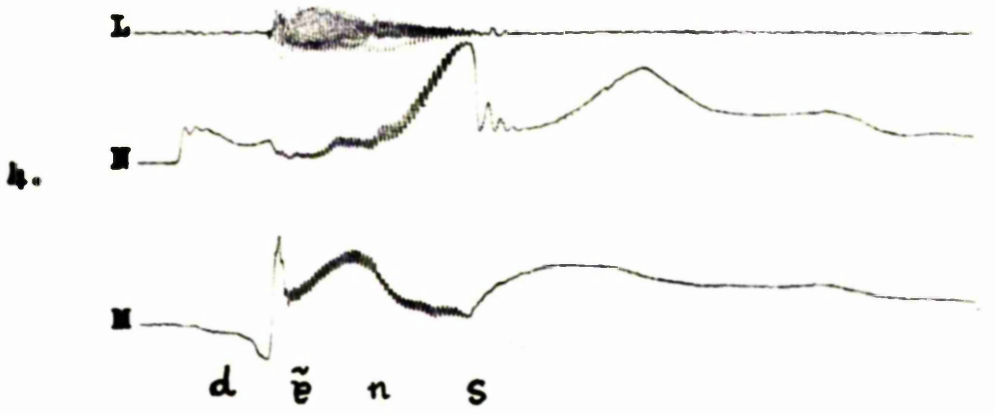


10. [dɨp]

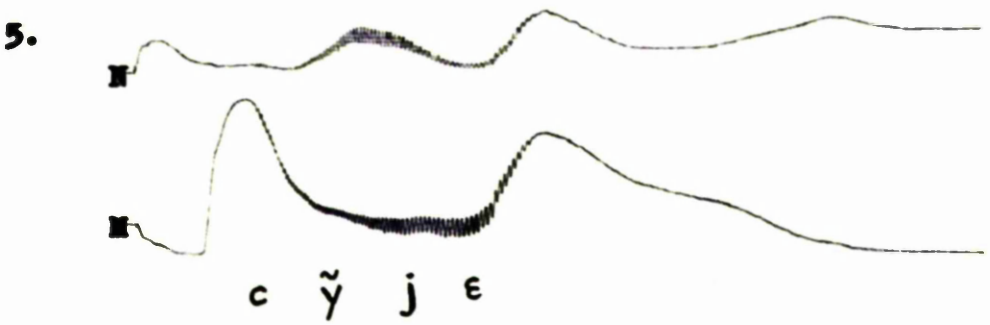


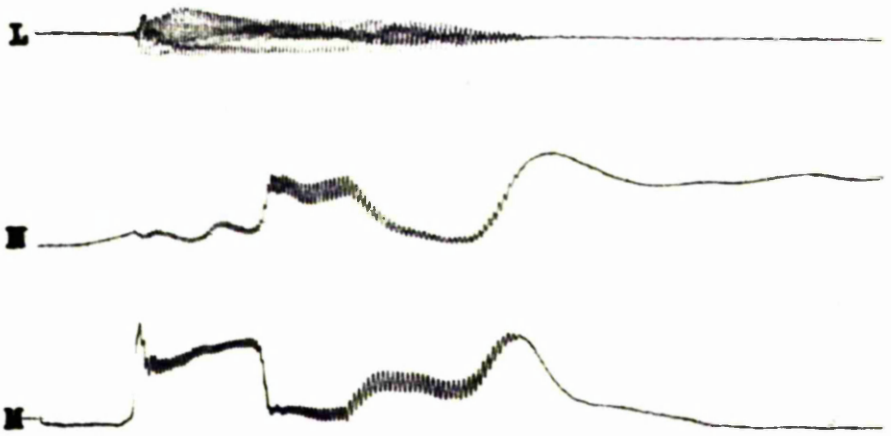
11. [dʲibʲi]


L
1.
N
N
œ ɲ
L
2.
N
N
x ɐ n ɯ̃ m
L
3.
N
N
ʂ ỹ ʒ ʃ y
50 Hz.


L
M
4.
M
d ẽ n s


L


5.
M
M
c ỹ j ɛ


L
6.
M
M
b ẽ m j ą̇


50 Hz.

APPENDIX II

A Group Vowels

çay	[ʧaj]	tea
şaş	[ʃaʃ]	be amazed
yaş	[jaʃ]	wet
yay	[jaj]	spread
aç	[aʧ]	open
aş	[aʃ]	food
ay	[aj]	month
baş	[baʃ]	head
bay	[baj]	mister
cay	[ʤaj]	change one's mind
cam	[ʤam]	glass
can	[ʤan]	life
çağ	[ʧa:]	era
çak	[ʧak]	strike
çal	[ʧal]	steal
çam	[ʧam]	pine tree
çan	[ʧan]	bell
çap	[ʧap]	diameter
çarp	[ʧarp]	beat
çat	[ʧat]	be angry at
haç	[xaʧ]	cross
kaç	[kaʧ]	how many
kaş	[kaʃ]	eyebrow
kay	[kaj]	slide
maç	[maʧ]	match
pay	[paj]	share
ray	[raj]	rail
saç	[saʧ]	hair

cont. next column

say	[saj]	count
şan	[ʃan]	fame
şans	[ʃans]	luck
şap	[ʃap]	
şart	[ʃart]	condition
taç	[taʧ]	crown
taş	[taʃ]	stone
tay	[taj]	pony
yağ	[ja:]	butter
yak	[jak]	burn
yan	[jan]	get burned
yap	[jap]	make
yar	[jar]	cliff
yas	[jas]	mourning
yat	[jat]	lie down
yaz	[jaz]	summer
ar	[aɹ]	honour
bar	[baɹ]	drinking bar
dar	[daɹ]	narrow
far	[faɹ]	head light
fark	[faɹk]	difference
harç	[xaɹʧ]	trimmings
kar	[kaɹ]	snow
kart	[kaɹt]	over ripe
nar	[naɹ]	pomegranate
sark	[saɹk]	lean out
sar	[saɹ]	wrap up
tart	[taɹt]	weigh
var	[vaɹ]	arrive
zar	[zaɹ]	dice

cont.

zarf	[zaɹf]	envelope
ak	[ɐ̈k]	white
an	[ɐ̃n]	moment
at	[ɐt]	horse
bak	[bɐk]	look
ban	[bɐn]	dip
bat	[bɐt]	sink
dam	[dɐm]	roof
dans	[dɐ̃ns]	dance
ham	[xɐm]	unripe
han	[xɐn]	inn
hap	[xɐp]	pill
hat	[xɐt]	line
kan	[kɐn]	blood
kap	[kɐp]	snatch
kat	[kɐt]	layer
mat	[mɐt]	dull
pak	[pɐk]	clean
san	[sɐn]	suppose
sap	[sɐp]	stem
sat	[sɐt]	sell
tak	[tɐk]	put on
tam	[tɐm]	exact
tan	[tɐn]	dawn
tap	[tɐp]	worship
tat	[tɐt]	taste
vat	[vɐt]	voltage
zam	[zɐm]	increase
zamk	[zɐ̃mk]	glue

cont. next column

af	[ɐ̯f]	forgiveness
as	[ɐ̯s]	hang
az	[ɐ̯z]	little
av	[ɐ̯v]	prey
bas	[bɐ̯s]	step on
has	[xɐ̯s]	real
gaz	[gɐ̯z]	gas
kav	[kɐ̯v]	tinder
kas	[kɐ̯s]	muscle
kaz	[kɐ̯z]	goose
naz	[nɐ̯z]	coyness
pas	[pɐ̯s]	rust
raf	[ɹɐ̯f]	shelf
saf	[sɐ̯f]	pure
sav	[sɐ̯v]	send away
saz	[sɐ̯z]	reed
tas	[tɐ̯s]	bowl
tav	[tɐ̯v]	fatness
aǧ	[ɑ:]	net
al	[ɑɬ]	take
alt	[ɑɬt]	bottom
baǧ	[bɑ:]	vineyard
bal	[bɑɬ]	honey
daǧ	[dɑ:]	mountain
dal	[dɑɬ]	branch
fal	[fɑɬ]	fortune
halk	[xɑɬk]	people
kal	[kɑɬ]	stay
kalk	[kɑɬk]	get up
kalp	[kɑɬp]	fake
nal	[nɑɬ]	horse shoe
mal	[mɑɬ]	property
saǧ	[sɑ:]	alive
sal	[sɑɬ]	raft

çel	[ʧæl̩]	attract
del	[ʤæl̩]	drill
gel	[ɹæl̩]	come
kel	[cæl̩]	bald
sel	[ʃæl̩]	flood
tel	[ʈæl̩]	wire
yel	[jæl̩]	wind
ders	[ʤæ˞s]	lesson
dert	[ʤæ˞ʈ]	sorrow
er	[æ˞]	soldier
fer	[fæ˞]	lustre
ger	[ɹæ˞]	stretch
her	[çæ˞]	each
ser	[ʃæ˞]	spread
sert	[ʃæ˞ʈ]	hard
ter	[ʈæ˞]	sweat
ver	[yæ˞]	give
yer	[jæ˞]	place
ben	[ɓɛn̩]	I
denk	[ʤɛŋc]	bundle
gem	[ɹɛm̩]	bridle
genc	[ɹɛnʧ]	young
hem	[çɛm̩]	also
renk	[ɹɛŋc]	colour
sen	[ʃɛn̩]	you
sen	[ʃɛn̩]	merry
ten	[ʈɛn̩]	complexion
yem	[jɛm̩]	animal feed
yen	[jɛn̩]	win
bel	[ɓɛl̩]	waist
bes	[ɓɛʃ]	five
bey	[ɓɛj]	gentleman
de	[ʤɛ]	say
değ	[ʤɛː]	touch
deş	[ʤɛʃ]	pierce
eğ	[ɛː]	bend
el	[ɛl̩]	hand
em	[ɛ̃m̩]	suck
en	[ɛ̃n̩]	width
eş	[ɛʃ]	equal
geç	[ɹɛʧ]	late
leş	[l̩ɛʃ]	carcass
ne	[ŋɛ]	what
nem	[ŋɛm̩]	humidity
rey	[ɹɛj]	vote
seç	[ʃɛʧ]	choose
şey	[ʃɛj]	thing
ve	[yɛ]	and
ye	[jɛ]	eat
et	[eʈ]	meat
es	[eʃ]	blow
ez	[eʒ]	crush
ev	[ey]	house
bez	[ɓeʒ]	cloth
cep	[ʤep]	pocket
dev	[dey]	monster
gez	[ɹeʒ]	wander
hep	[çep]	always

kes	[ceʂ]	cut
pes	[peʂ]	low
ses	[ʃeʂ]	voice
set	[ʃeʈ]	barrier
sev	[ʃey]	like
sez	[ʃeʒ]	feel
şef	[ʃeʃ]	chief
şevk	[ʃeyc]	encouragement
tef	[ʈeʃ]	tambourine
tep	[ʈeʂ]	kick
tez	[ʈeʒ]	quick
zevk	[ʒeyc]	pleasure

ek	[ẹc]	addition
çek	[ʧẹc]	pull
ķek	[cẹc]	cake
pek	[pẹc]	very
sek	[sẹc]	plain
tek	[tẹc]	only

I Group Vowels

çığ	[ʧɣː]	avalanche
dış	[dɣʃ]	outside
kıç	[kɣʧ]	back
kıl	[kɣɬ]	hair
kış	[kɤʃ]	winter
kıy	[kɣj]	sacrifice
sığ	[sɣː]	shallow
tığ	[tɣː]	crochet hook
yığ	[jɤː]	pile
yıl	[jɣɬ]	year
bık	[bɯk]	be fed up
çık	[ʧɯk]	go out
hırs	[xɯɹs]	ambition
hırt	[xɯɹt]	uncooked
kın	[kɯn]	cover
kır	[kɯɹ]	break
kırp	[kɯɹp]	shear
mıh	[mɯx]	nail
sık	[sɯk]	squeeze
sır	[sɯɹ]	secret
şık	[ʃɯk]	elegant
tıp	[tɯp]	medicine
yık	[jɯk]	demolish
yırt	[jɯɹt]	tear
zıt	[zɯt]	opposite
hız	[xɯz]	speed
kıs	[kɯs]	reduce
kız	[kɯz]	girl
sız	[sɯz]	leak

İ Group Vowels

biç	[ɓiʲʧ]	cut
bil	[ɓiˌlˌ]	know
çil	[ʧiˌlˌ]	freckle
dil	[ɖiˌlˌ]	tongue
diş	[ɖiˌʃ]	tooth
fil	[ʄiˌlˌ]	elephant
fiş	[ʄiˌʃ]	chit
hiç	[çiˌʧ]	none
iç	[iˌʧ]	drink
il	[iˌlˌ]	city
iş	[iˌʃ]	work
kil	[ciˌlˌ]	earth
mil	[miˌlˌ]	mile
piç	[pˌiˌʧ]	illegitimate
pil	[pˌiˌlˌ]	battery
piş	[pˌiˌʃ]	cook
sil	[ʂiˌlˌ]	wipe
şiş	[ʃiˌʃ]	skewer
zil	[ʐiˌlˌ]	bell

bin	[ɓiɲ]	ride
bir	[ɓiɾ]	one
bit	[ɓitˌ]	louse
cin	[ɟiɲ]	fairy
çiğ	[ʧi:]	raw
çim	[ʧimˌ]	grass
çit	[ʧitˌ]	fence

din	[ɖiɲ]	religion
dip	[ɖipˌ]	bottom
gir	[ɟiɾ]	enter
giy	[ɟi:]	wear
in	[iɲ]	den
ip	[ipˌ]	rope
it	[itˌ]	push
kim	[cimˌ]	who
kin	[cinˌ]	hatred
kip	[cipˌ]	mood
kir	[ciɾ]	dirt
lif	[lˌifˌ]	tendon
sim	[ʂimˌ]	gold thread
sin	[ʂi]	hide
sirk	[ʂiɾc]	circus
tik	[tˌic]	tic
tin	[tˌiɲ]	intelligence
tip	[tˌipˌ]	type
zift	[ʐifˌtˌ]	tar

biz	[ɓiˌzˌ]	we
çiz	[ʧiˌzˌ]	draw
dik	[ɖiˌc]	steep
diz	[ɖiˌzˌ]	knee
his	[çiˌs]	feeling
is	[iˌs]	smoky

cont.

iz	[i̬ʒ]	trail
mis	[mi̬s]	clean
pis	[p̬i̬s]	dirty
risk	[ɹi̬sc]	danger
sis	[ʂi̬s]	fog
siz	[ʂi̬ʒ]	you
tiz	[ʈi̬ʒ]	shrill

boğ	[bɔ:]	strangle
doğ	[dɔ:]	be born
o	[ɔ]	it
bol	[bɔ̣ɬ]	loose
boş	[bɔ̣ʃ]	empty
boy	[bɔ̣j]	length
coş	[ʤɔ̣ʃ]	be merry
dol	[dɔ̣ɬ]	fill
doy	[dɔ̣j]	be full up
hoş	[xɔ̣ʃ]	pleasant
koç	[kɔ̣ʧ]	ram
kol	[kɔ̣ɬ]	arm
koş	[kɔ̣ʃ]	run
koy	[kɔ̣j]	put
ol	[ɔ̣ɬ]	be
oy	[ɔ̣j]	vote
sol	[sɔ̣ɬ]	left
soy	[sɔ̣j]	peel
toy	[tɔ̣j]	inexperienced
yol	[jɔ̣ɬ]	road
bot	[bo̱t]	small boat
cop	[ʤo̱p]	truncheon
çok	[ʧo̱k]	very
don	[do̱n]	freeze
fok	[ɸo̱k]	seal
fon	[ɸo̱n]	foundation
kof	[ko̱ɸ]	weak

cont. next column

kok	[ko̱k]	smell
kon	[ko̱n]	perch
kop	[ko̱p]	be separated
kor	[ko̱ɹ]	fire
kov	[ko̱w]	send away
mor	[mo̱ɹ]	purple
ok	[o̱k]	arrow
on	[o̱n]	ten
ot	[o̱t]	grass
ov	[o̱w]	rub
sof	[so̱]	lining
sok	[so̱k]	put into
som	[so̱m]	pure
son	[so̱n]	last
sor	[so̱ɹ]	ask
som	[ʃo̱m]	bad
tok	[to̱k]	full up
ton	[to̱n]	ton
top	[to̱p]	ball
yok	[jo̱k]	absent
yont	[jo̱nt]	chip
yor	[jo̱ɹ]	tire out
boz	[boz]	off white
dost	[dost]	friend
doz	[doz]	doze
koz	[koz]	advantage
post	[post]	animal skin
poz	[poz]	pose
toz	[toz]	dust

öç	[œʨ]	revenge
öl	[œɮ]	die
ölç	[œɮʨ]	measure
böl	[ɓœɮ]	divide
çöl	[ʨœɮ]	desert
göç	[ɟœʨ]	migration
göl	[ɟœɮ]	lake
köşk	[cœʃc]	mansion
köy	[cœj]	village
ön	[œɲ]	front
öp	[œƥ]	kiss
ör	[œɾ]	knit
öt	[œʈ]	sing
öv	[œʋ]	praise
çöp	[ʨœƥ]	rubbish
dön	[ɖœɲ]	come back
dört	[ɖœɾʈ]	four
döv	[ɖœʋ]	beat
göm	[ɟœɱ]	bury
gör	[ɟœɾ]	see
kör	[cœɾ]	blind
sön	[ʂœɲ]	extinguish
söv	[ʂœʋ]	swear
yön	[jœɲ]	direction
oz	[øʒ]	essence
çök	[ʨøc]	collapse
çöz	[ʨøʒ]	solve
dök	[ɖøc]	pour
gök	[ɟøc]	sky
göz	[ɟøʒ]	eye
sök	[ʂøc]	pull out
söz	[ʂøʒ]	speech

U Group Vowels

bu	[bu̟]	this	kurt	[kuɹt]	wolf
bul	[bu̟ɬ]	find	nur	[nuɹ]	light
çul	[ʧu̟ɬ]	garment	ruh	[rux]	spirit
dul	[du̟l]	widow	sun	[sun]	offer
duş	[du̟ʃ]	shower	sur	[suɹ]	city walls
duy	[du̟j]	hear	şuh	[ʃux]	dazzling
huy	[xu̟j]	habit	şut	[ʃut]	kick
kul	[ku̟ɬ]	servant	tur	[tuɹ]	tour
kulp	[ku̟ɬp]	handle	turp	[tuɹp]	radish
kuş	[ku̟ʃ]	bird	tut	[tut]	hold
pul	[pu̟ɬ]	stamp	um	[ũm]	hope
su	[su̟]	water	un	[ũn]	flour
suç	[su̟ʧ]	guilt	ur	[uɹ]	growth
şu	[ʃu̟]	that	ut	[ut]	
tuğ	[tu̟:]	plume	vur	[vuɹ]	strike
tuş	[tu̟ʃ]	knock out	yum	[jum]	close
uç	[u̟ʧ]	fly	yurt	[juɹt]	country
uy	[u̟j]		yut	[jut]	swallow

but	[but]	thigh	buz	[bu̟z]	ice
burç	[buɹʧ]	sign of the zodiac	kus	[ku̟s]	throw out
dur	[duɹ]	stop	mum	[mu̟m]	candle
dut	[dut]		muz	[mu̟z]	banana
kum	[kum]	sand	sus	[su̟s]	be quiet
kunt	[kunt]	strong	tuz	[tu̟z]	salt
kur	[kuɹ]	wind	us	[u̟s]	intelligence

cont. next column

Ü Group Vowels

düş	[dy̬ʃ]	dream
güç	[ɟy̬ʧ]	difficult
gül	[ɟy̬l]	rose
kül	[cy̬l]	ash
tül	[ty̬l]	lace
tüy	[ty̬j]	feather
üç	[y̬ʧ]	three
dün	[dy̬ɲ]	yesterday
dür	[dy̬ɻ]	wrap up
dürt	[dy̬ɻʈ]	touch
hür	[ç y̬ɻ]	free
gün	[ɟy̬ɲ]	day
gür	[ɟy̬ɻ]	strong
güt	[ɟy̬ʈ]	direct
küf	[cy̬ɸ]	mould
künk	[cy̬ɲc]	
küp	[cy̬ɸ]	
kür	[cy̬ɻ]	diet
küt	[cy̬ʈ]	broad
sür	[ʂy̬ɻ]	drive
sürt	[ʂy̬ɻʈ]	rub against
süt	[ʂy̬ʈ]	milk
tüm	[ʈy̬m]	all
tüp	[ʈy̬ɸ]	tube
tür	[ʈy̬ɻ]	variety
tüt	[ʈy̬ʈ]	smoulder
ün	[ỹɲ]	fame
yün	[jy̬ɲ]	wool
bük	[ɓy̬c]	bend
büst	[ɓy̬ʂʈ]	sculpter
büz	[ɓy̬ʒ]	pleat
düz	[ɖy̬ʒ]	straight
güz	[ɟy̬ʒ]	autumn
küs	[cy̬ʂ]	quarrel
süs	[ʂy̬ʂ]	ornament
süz	[ʂy̬ʒ]	strain
üs	[y̬ʂ]	base
üst	[y̬ʂʈ]	top
üz	[y̬ʒ]	make sad
yük	[jy̬c]	cargo
yüz	[jy̬ʒ]	face

APPENDIX III

bangır — indicates very loud shouting

bıcık — " stickiness, mostly in connection with jam, etc.

bip — indicates hooting

bum — " an explosion

cart — " tearing cloth, etc.

cayır — " burning

cıyak — " shrill voice

cız — " usually a painful injection, or a burn on the skin

cızır — indicates sizzling

cup — " object falling into a liquid, usually water

çat — indicates banging of a door

çangır — " clanking

çın — indicates an echo

çıngır — " ringing of a bell, etc.

çıt — crack

çuf — indicates noise of an engine

dan — " a metallic banging noise

düt — indicates sound of a whistle

fakır — " boiling

faşır — " rapid flow of water

fıkır — " boiling gently

fildır — " rapid circling movement

fırıl — indicates whirling

fıs — indicates whispering, air escaping very slowly

fısıl — indicates whispering

fısır — indicates swelling on the skin

fış — indicates a hissing or rustling sound

fışır — bubbly

fingir — indicates a swaying motion

fos — indicates hollowness

foşur — " inhaling deeply

foş — indicates flushing of water

gak — indicates belching

gık — " a barely heard utterance

gacır — creaky

gıcır — squeaky

gurul — indicates rumbling

güldür — " gushing

güm — indicates a heavy fall

gümbür — " a thundering noise

gürül — indicates strong flow of water

haldır — indicates rough behaviour

hapır — " eating in haste

harıl — indicates state of being in haste

hart – indicates biting fiercely

hatır – " being unripe

haşır – " rustling

hık – indicates a hiccup

hım – " a nasal twang

hışır – " a rustling noise or rough skin

hişt – calling to attention or to keep quiet

hop – indicates jumping

hor – " snoring

homur – " grumbling

horul – " snorting

hopur – " drinking something noisily

hŏt – boo

hŭngŭr – indicates crying

hŭp – gulp

katır – indicates hardness, to become hardened

kımıl – indicates continuous movements

kıpır – indicates stirring

kış – shoo

kuçu – used in calling a dog

kŭfŭr – indicates coolness

kŭt – bang

kŭtŭr – indicates freshness and firmness

mır – indicates humming

mırıl – indicates mumbling

mışıl – indicates sleeping deeply

lakır – indicates swallowing

langır – " movement of something bulky

lıkır – indicates drinking quickly to quench one's thirst

lŏk – indicates slumping

lŏp – " things in a bulk

lŏpŭr – " eating noisily

lŭp – indicates gulping

pat – " the noise of a heavy fall

patır – indicates the noise of footsteps

pır – indicates fluttering of wings

pırıl – indicates shimmering

pırt – bulging

pisi – for calling a cat

pıt – indicating a barely heard noise

pof – indicates a soft explosion

pŏf – " an unpleasant smell

puf – indicates to swell suddenly

pŭf – " blowing out candles, etc.

pŭfŭr – breezy

rap – indicates marching

şak – " clapping

şakır – " a heavy rainfall

şangır – " breaking of glass, etc.

şıkır – indicates rainfall

şıngır – " shaking of cups,glass,etc.

şırıl – " noise of water flowing gently

tak – indicates hammering something

takır – indicates a lot of noise

tık – indicates tapping lightly on wood mainly doors

tıkır – " manner of walking causing a continuous but light noise, on high heels

tın – indicating hollowness

tingır – indicates a metallic noise

tıp – indicates dropping of water from a tap at regular intervals

tıs – " silence

tiril – " thinness

zangır – " strong trembling

zıngır – " shaking

zınk – indicates jerking

zıp – " jumping up and down

zır – " ringing of a doorbell

zırıl – " persistent, complaining voice

zırt – " doing things suddenly, without a warning

zonk – " throbbing

vıcık – " stickiness, mostly in connection with oil, mud

vın – indicates noise of a flying bullet, arrow, etc.

vıyak – " screaming of a baby

vız – " buzzing , also excessive speed

vızıl – " vibrating noise

vızır – " swiftness

yuvar – " roundness

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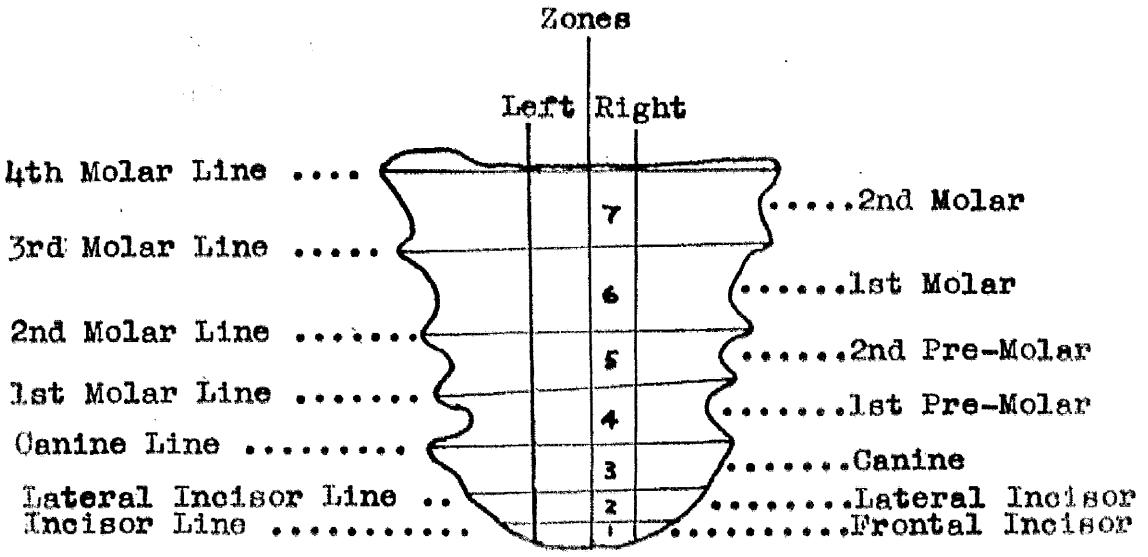
The Palatogram Figure

B. Winnick



SONAGRAPH GRID